ORDER NO. GAD8606038C2

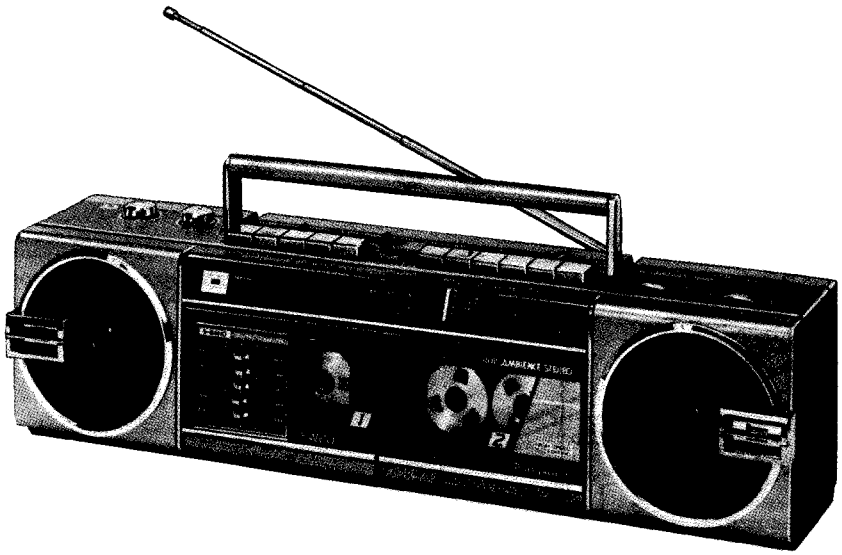
Service Manual

Radio Cassette

RX-FW20L

(Black)
(Silver)

Stereo Radio Cassette Recorder



This is the Service Manual for the following areas.

[Z]...For all European areas except [E] [F] [G].

[E]...For United Kingdom.

[F]...For France.

[G]...For F.R. Germany.

RX-CW30 MECHANISM SERIES

■ SPECIFICATIONS

General:

Power Requirement:	[Z] [F] [G] .. AC; 220 V 50 Hz
	[E] ..... AC; 240 V, 50 Hz
	Battery; 9 V (six "D" Size Flashlight Batteries)
	(Panasonic UM-1 or equivalent)
	Car battery; with optional car adaptor RP-917
Power Consumption:	14 W (AC only)
Power Output:	8 W (4 W×2)...MPO
	8 W (4 W×2)...RMS (max.)
Speaker:	Woofer; 10 cm PM Dynamic Speaker (2.7Ω)
	Tweeter; 2 cm Ceramic Speaker (1 kΩ)
Input:	MIX MIC; sensitivity 5 mV/applicable microphone impedance 600Ω (φ3.5)
	LINE IN; sensitivity 224 mV/47 kΩ over
Output:	HEADPHONES; 32Ω, φ3.5
Dimensions:	492 (W)×135 (H)×118 (D) mm
Weight:	2.6 kg without batteries

Radio Section:

Radio Frequency Range:	FM; 87.5~108 MHz
	LW; 148.5~285 kHz
	MW; 520~1610 kHz
	SW; 5.9~18 MHz
Intermediate Frequency:	FM; 10.7 MHz
	[Z] [F] [G] .. AM (LW/MW/SW); 455 kHz
	[E] ..... AM (LW/MW/SW); 470 kHz
Sensitivity:	FM; 2.8 μV/50 mW output (−3 dB Limit Sens)
	MW; 178 μV/m/50 mW output
	SW1; 126 μV/m/50 mW output
	SW2; 7.9 μV/50 mW output

Tape Deck Section	**Tape 1**
Frequency Response:	60~13,000 Hz (with normal tape)
Tape Speed:	4.8 cm/s
Track System:	4-track 2-channel stereo playback

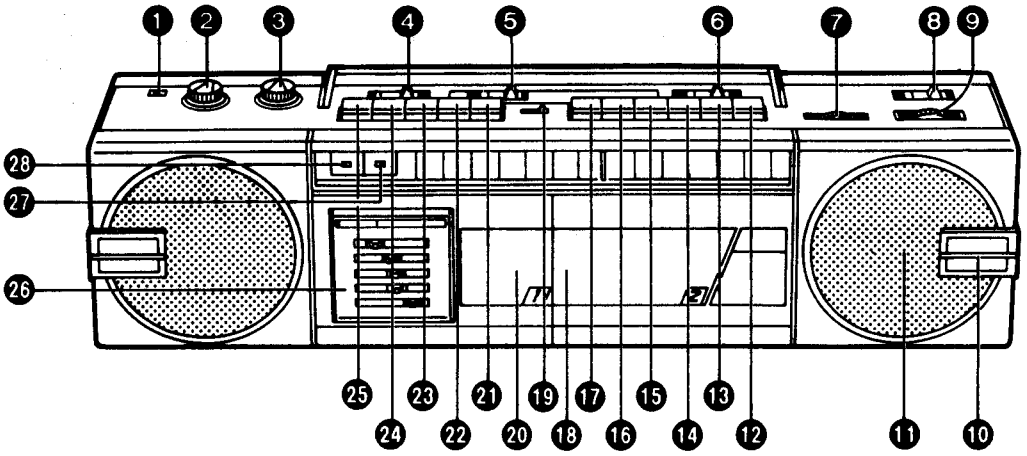
Tape Deck Section	**Tape 2**
Frequency Response:	60~13,000 Hz (with normal tape)
Recording System:	AC bias, Magnet erase
Tape Speed:	4.8 cm/s
Track System:	4-track 2-channel stereo recording and playback

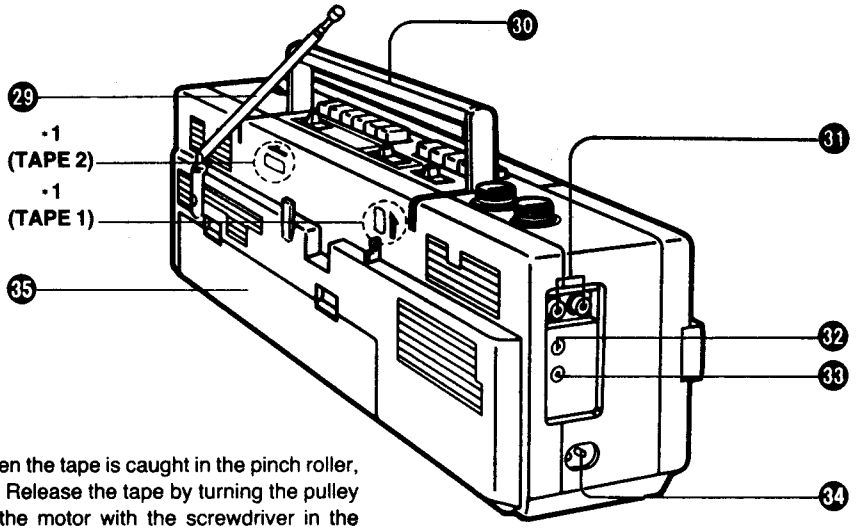
Design and specifications are subject to change without notice.

Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

LOCATION OF CONTROLS AND COMPONENTS





•1 When the tape is caught in the pinch roller, etc. Release the tape by turning the pulley on the motor with the screwdriver in the direction of the arrow.

1. **Built-in Microphone (MIC)**
2. **Volume Control (VOLUME)**
3. **Balance Control (BALANCE)**
4. **Function Selector (SELECTOR)**
5. Editing Selector (EDITING)
6. **Band Selector (BAND)**
7. **Fine Tuning Control (FINE TUNING)**
8. **Mode Selector/Beat Proof Switch (MODE/B.P)**
9. **Tuning Control (TUNING)**
10. **Speakers [Tweeter]** 2 cm (1 kΩ)
11. **Speakers [Woofer]** 10 cm (2.7Ω)

TAPE 2

Controls for Recording and Playback

12. **Record Button (● (RECORD))**
13. **Playback Button (◀PLAY)**
14. **Rewind/Review Button (▶▶REW/REV)**
15. **Fast Forward/Cue Button (◀◀FF/CUE)**
16. **Stop/Eject Button (⏏STOP/EJECT)**
17. **Pause Button (❚❚PAUSE)**
18. **Cassette Compartment**
19. **Tape Counter and Reset Button (TAPE 2 COUNTER)**

TAPE 1

Controls for Playback

20. **Cassette Compartment**
21. **Playback Button (◀ PLAY)**
22. **Rewind/Review Button (▶▶REW/REV)**
23. **Fast Forward/Cue Button (◀◀FF/CUE)**
24. **Stop/Eject Button (⏏STOP/EJECT)**
25. **Pause Button (❚❚PAUSE)**
26. **Graphic Equalizer Controls (5-BAND GRAPHIC EQUALIZER)**
27. **FM Stereo Indicator (FM STEREO)**
28. Operation/Battery Check Indicator (OPR/BATT)
29. **Telescopic Antenna**
30. **Handle**
31. **Line Input Jacks (LINE IN)** 224 mV/47 kΩ over
32. **Mixing Microphone Jack (MIXING MIC)** 5 mV/600Ω, ∅3.5
33. **Headphones Jack (PHONES) (32Ω) ∅3.5**
34. **AC Socket (AC IN ~)**
35. **Battery Compartment**

DISASSEMBLY INSTRUCTIONS

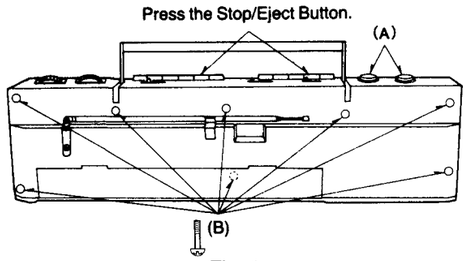


Fig. 1

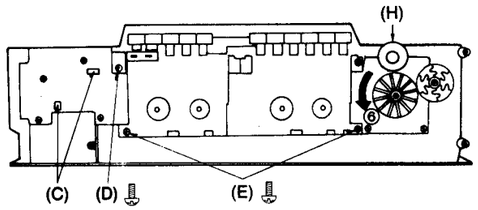


Fig. 2

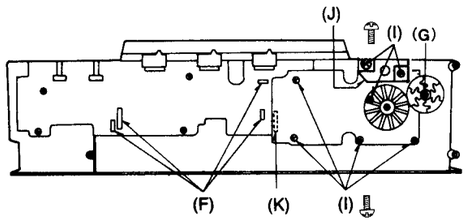


Fig. 3

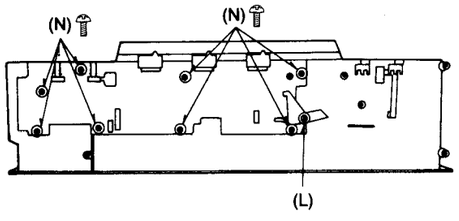


Fig. 4

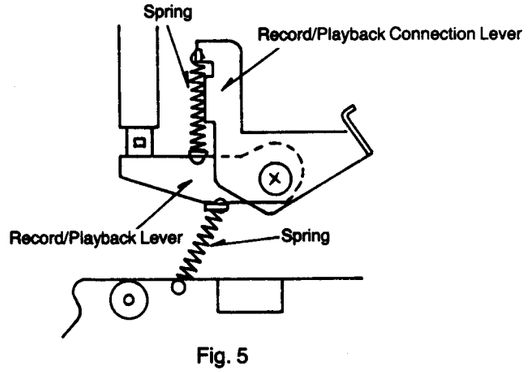


Fig. 5

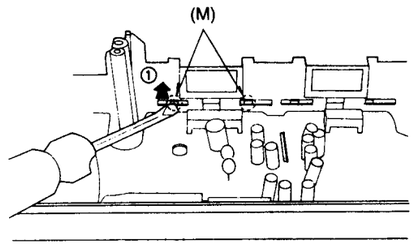


Fig. 6

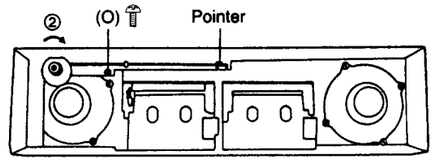


Fig. 7

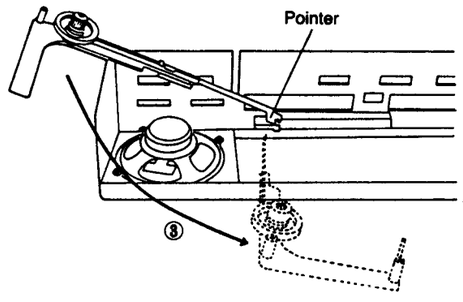


Fig. 8

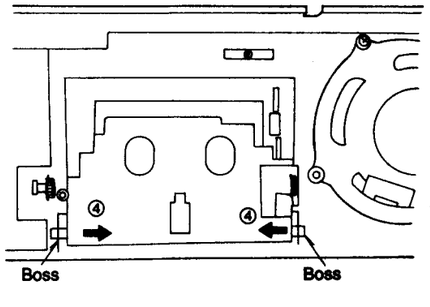


Fig. 9

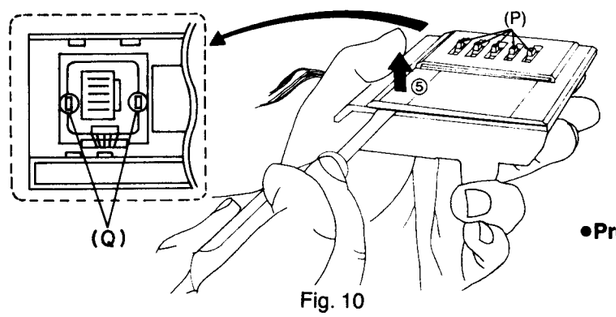


Fig. 10

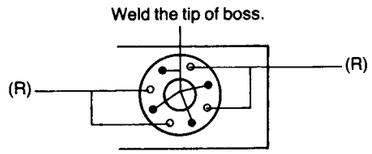
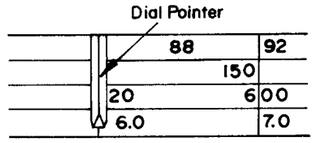


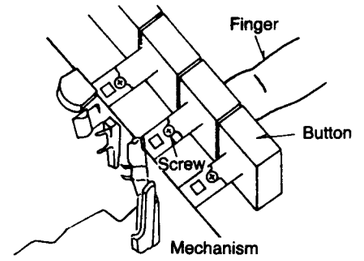
Fig. 11

•Precautions for attachment of front panel (Dial setting point)



1. Line up the indicator with the position shown in the figure.
2. Turn the variable capacitor drum all the way in the direction of arrow ⑥. (See Fig. 2.)

•Precautions for removing mechanism button

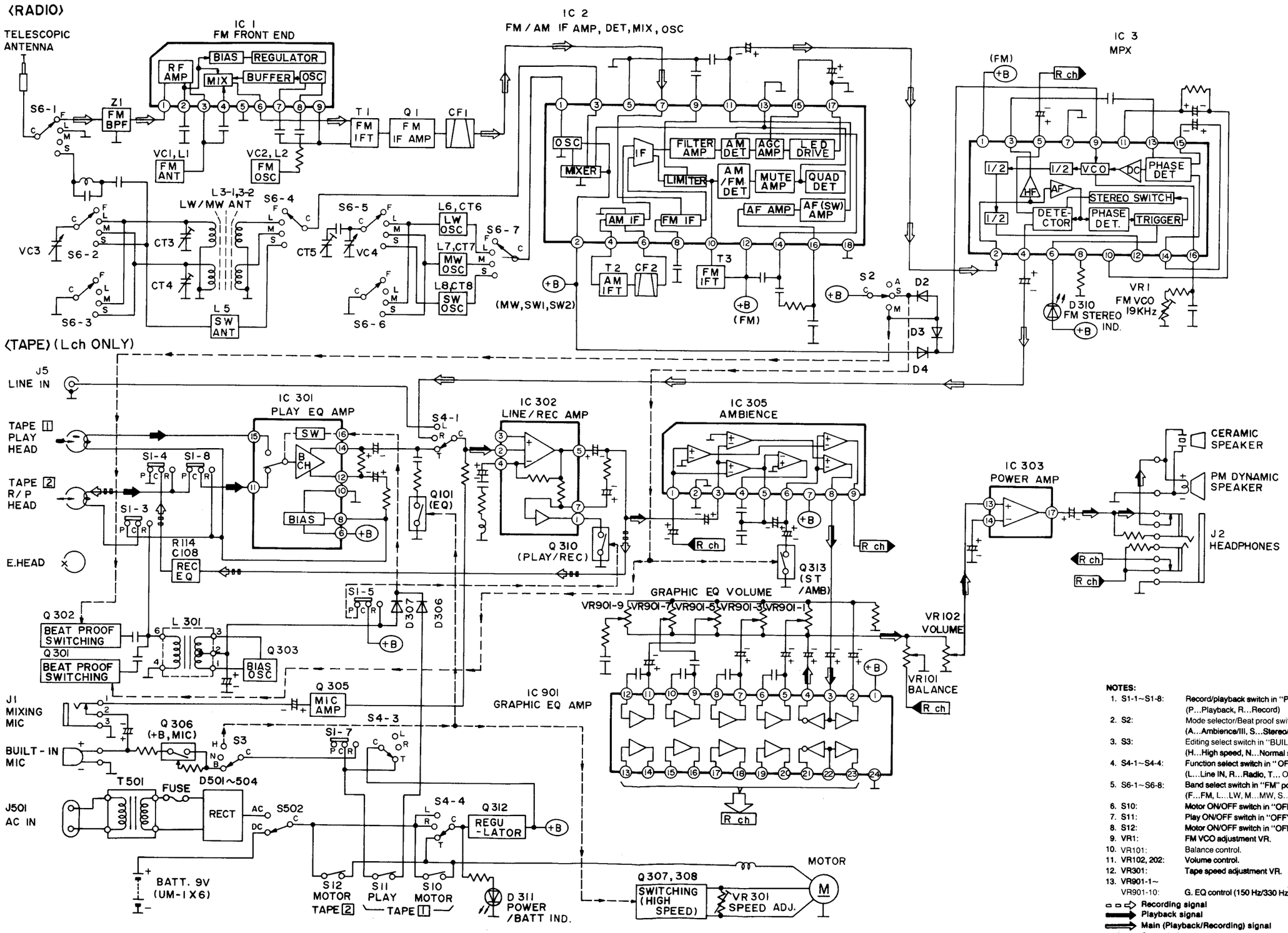


When removing the mechanism buttons, be sure to depress the buttons while turning their respective screws.

Ref. No.	Shown in Fig.—.	To remove —.	Remove —.
1	1	Front Cabinet	Knob ..... (A)×2
2	1		Screw (3×50) mm ..... (B)×8
3	1		Press the Stop/Eject button.
4	2		Socket (CS4, CS9) ..... (C)×2
5	2	LED Circuit Board (*1)	Screw (3×10) mm ..... (D)×1
6	2	Mechanism (Tape 1, 2)	Screw (3×10) mm ..... (E)×2
7	3		Socket (CS1, CS2, CS5, CS6) ..... (F)×4
8	3	Intermediate Gear	Screw (3×10) mm ..... (G)×1
9	2	Tuner Circuit Board	Knob ..... (H)×1
10	3		Screw (3×10) mm ..... (I)×7
11	3		Holder ..... (J)×1
12	3		Socket (CS3) ..... (K)×1
13	4	Record/Playback Lever (•2)	Screw (3×10) mm ..... (L)×1
14	6	Switch Lever	Push the lug in the direction of arrow ①. ..... (M)×2 (Do not push with too much force as this may cause the lug to break.)
15	4	Main Circuit Board	Screw (3×10) mm ..... (N)×8
16	7	Dial Chassis	Turn the tuning knob in the direction of arrow ② and move the pointer all the way to the right.
17	7		Screw (3×10) mm ..... (O)×1
18	8		Remove the dial chassis with the tuning knob connected and move it in the direction of arrow ③ to remove the dial pointer.
19	9	Cassette Cover	Push the boss in the direction of arrow ④ and pull it off.
20	10	Cassette Panel Ass'y (Tape 1)	Knob ..... (P)×5
21	10		Insert the tip of ⊖ driver to the slit of cassette panel and lift the cassette panel in the direction of arrow ⑤.
22	10	G. EQ Circuit Board	Rib ..... (Q)×2
23	11	Tweeter (•3)	Cut the tip of boss ..... (R)×4

*1) The LED circuit board screws also secure the mechanism in place.
*2) When this screw is removed, the record/playback lever and record/playback connecting lever become separate, so attach them as shown in Fig. 5 in assembly.
•3) Weld the tip of boss as shown in Fig. 11.

BLOCK DIAGRAM



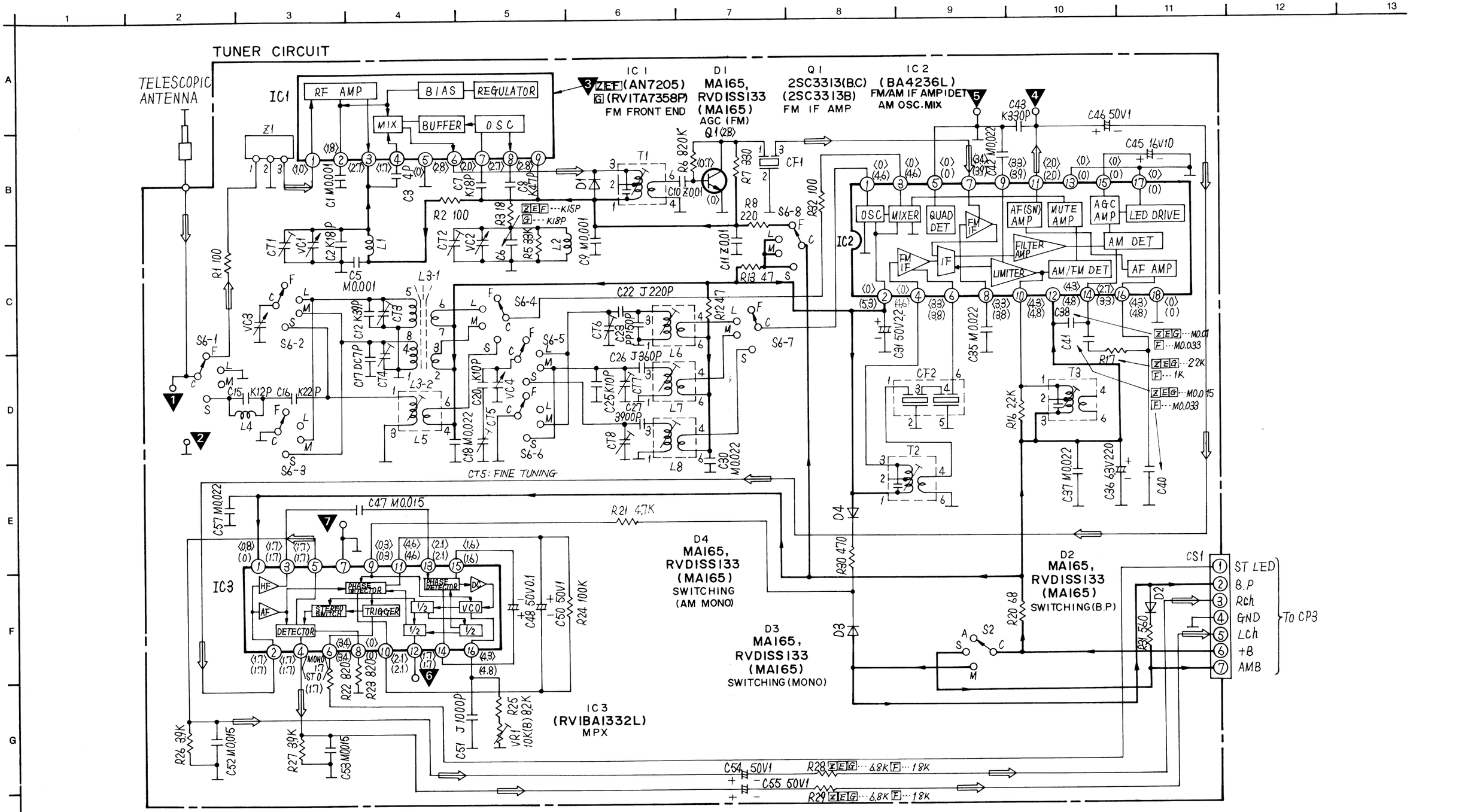
NOTES:

1. S1-1~S1-8: Record/playback switch in "PLAYBACK" position. (P...Playback, R...Record)
2. S2: Mode selector/Beat proof switch in "Ambience/III" position. (A...Ambience/III, S...Stereo/II, M...Mono/I)
3. S3: Editing select switch in "BUILT-IN MIC" position. (H...High speed, N...Normal speed, B...Built-IN MIC)
4. S4-1~S4-4: Function select switch in "OFF/TAPE" position. (L...Line IN, R...Radio, T... Off/Tape)
5. S6-1~S6-8: Band select switch in "FM" position. (F...FM, L...LW, M...MW, S...SW)
6. S10: Motor ON/OFF switch in "OFF" position. } TAPE 1
7. S11: Play ON/OFF switch in "OFF" position. } TAPE 1
8. S12: Motor ON/OFF switch in "OFF" position } TAPE 2
9. VR1: FM VCO adjustment VR.
10. VR101: Balance control.
11. VR102, 202: Volume control.
12. VR301: Tape speed adjustment VR.
13. VR901-1~ VR901-10: G. EQ control (150 Hz/330 Hz/1 kHz/3.3 kHz/10 kHz).

Recording signal
Playback signal
Main (Playback/Recording) signal
Control signal
FM signal

▼ Be sure to fold at the (▼) mark so that mark is on the outside.

SCHEMATIC DIAGRAM (for Tuner Section)



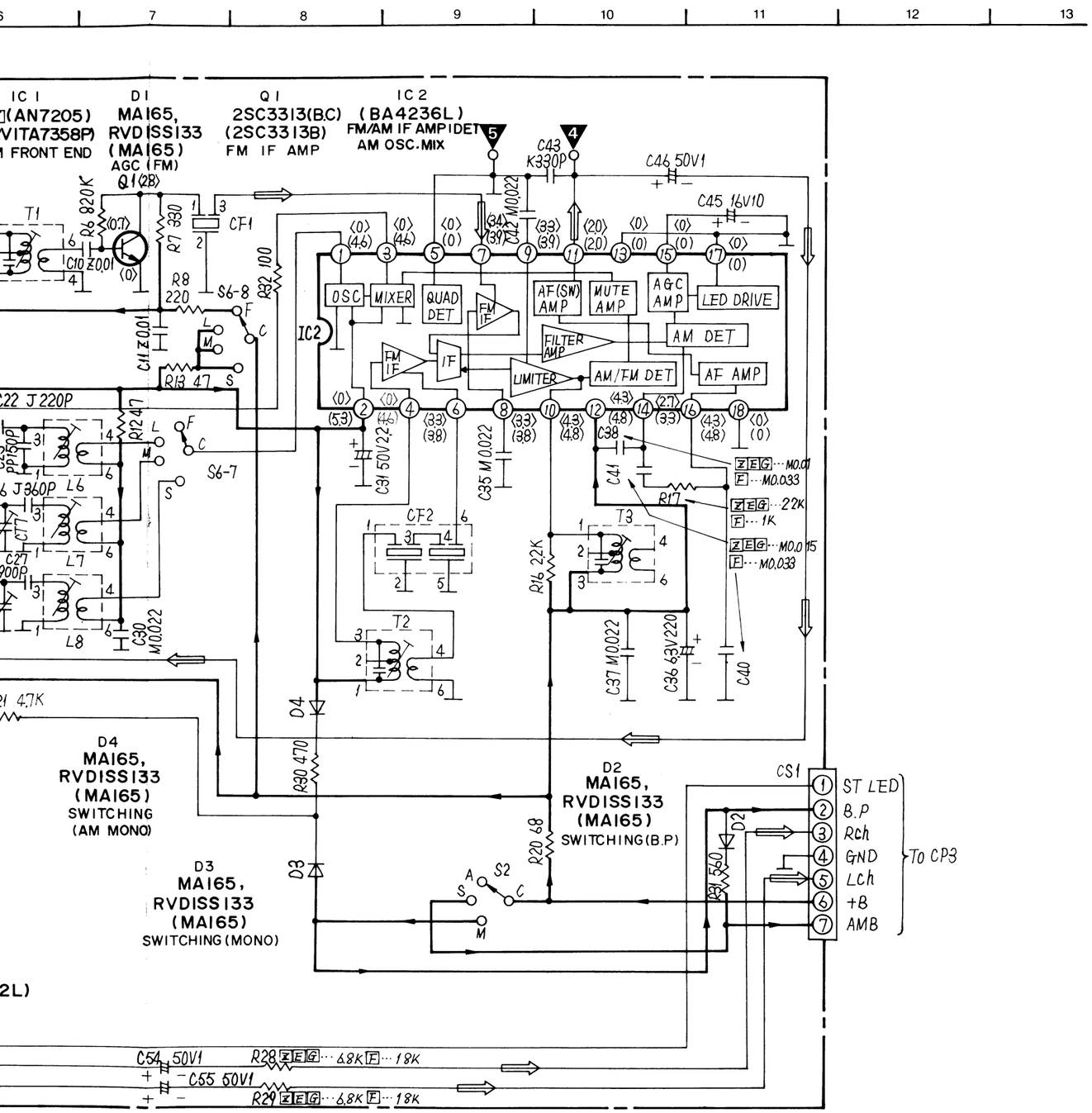
: FM signal : +B Line

NOTES:

1. S2: Mode selector/Beat proof switch in "Ambience/III" position. (A...Ambience/III, S...Stereo/II, M...Mono/I)
2. S6-1~ S6-8: Band select switch in "FM" position. (F...FM, L...LW, M...MW, S...SW)
3. VR1: FM VCO adjustment VR.
4. The mark (▼) shows test point e.g. ▼=test point 1.
5. DC voltage measurement are taken with electronics voltmeter from negative terminal of battery.
   < >...FM position. ( )...AM position,
6. Described in schematic diagram are two types of numbers; the supply parts number and production parts number for transistors and diodes. One type number is used for supply parts number and production parts number which they are identical.
   e.g. Q1
   2SC2412NRTB, LNSTB ← Production parts number
   (2SC2412) ← Supply parts number
7. The supply parts number is described alone in the replacement parts list.

•This schematic diagram may be modified at any time with the development of new technology.

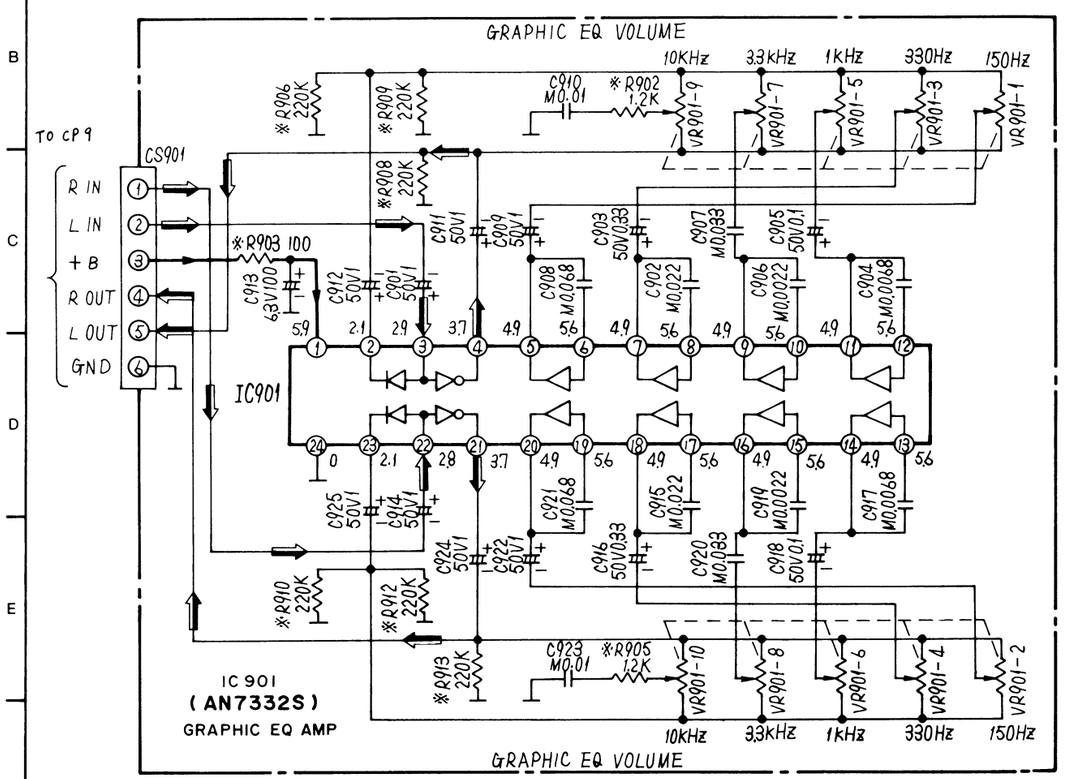
TIC DIAGRAM (for Tuner Section)



6. Described in schematic diagram are two types of numbers; the supply parts number and production parts number for transistors and diodes. One type number is used for supply parts number and production parts number which they are identical.
   e.g. Q1
   2SC2412NRTB, LNSTB ← Production parts number
   (2SC2412) ← Supply parts number
7. The supply parts number is described alone in the replacement parts list.

•This schematic diagram may be modified at any time with the development of new technology.

(for Graphic Equalizer Section)



: Main signal, : +B Line

NOTES:

1. VR901-1~901-10: Equalizer control (150 Hz/330 Hz/1 kHz/3.3 kHz/10 kHz)
2. DC voltage measurement are taken with electronics voltmeter from negative terminal of battery.
   No mark…Playback position
3. Described in schematic diagram are two types of numbers; the supply parts number and production parts number for transistors and diodes. One type number is used for supply parts number and production parts number which they are identical.
   e.g. Q1
   2SC2412NRTB, LNSTB ← Production parts number
   (2SC2412) ← Supply parts number
4. ✱mark…Printed resistor.
5. The supply parts number is described alone in the replacement parts list.

•This schematic diagram may be modified at any time with the development of new technology.

NOTES:

1. S1-2~S1-8: Record/playback switch in "PLAYBACK" position. (P...Playback, R...Record)
2. S3: Editing switch in "BUILT-IN MIC" position. (H...High speed, N...Normal speed, B...Built-IN MIC)
3. S4-1~S4-4: Function select switch in "OFF/TAPE" position. (L...Line IN, R...Radio, T...OFF/TAPE)
4. S10, 12: Motor Switch.
5. S11: Play Switch....(TAPE 1)
6. VR101: Balance control.
7. VR102, 202: Volume control.
8. VR301: Tape speed adjustment VR.
9. The mark (▼) shows test point e.g. ▼ = test point 1.
10. DC voltage measurement are taken with electronics voltmeter from negative terminal of battery.
    No mark...Playback position,
    ( )...Recording position,
    ≪ ≫...BP (I) position,
    [[ ]]...High speed editing mode.
11. Battery current:

No signal	96 mA	
Maximum output		
Radio	747mA	
Tape/Playback	823 mA	
Tape/Recording	130 mA	(Built-IN MIC)
Normal Speed Editing	163 mA	

12. Described in schematic diagram are two types of numbers; the supply parts number and production parts number for transistors and diodes. One type number is used for supply parts number and production parts number which they are identical.
    e.g. Q1
    2SC2412NRTB, LNSTB ← Production parts number
    (2SC2412) ← Supply parts number
4. The supply parts number is described alone in the replacement parts list.

•This schematic diagram may be modified at any time with the development of new technology.

ELECTRICAL PARTS LIST

REPLACEMENT PARTS LIST

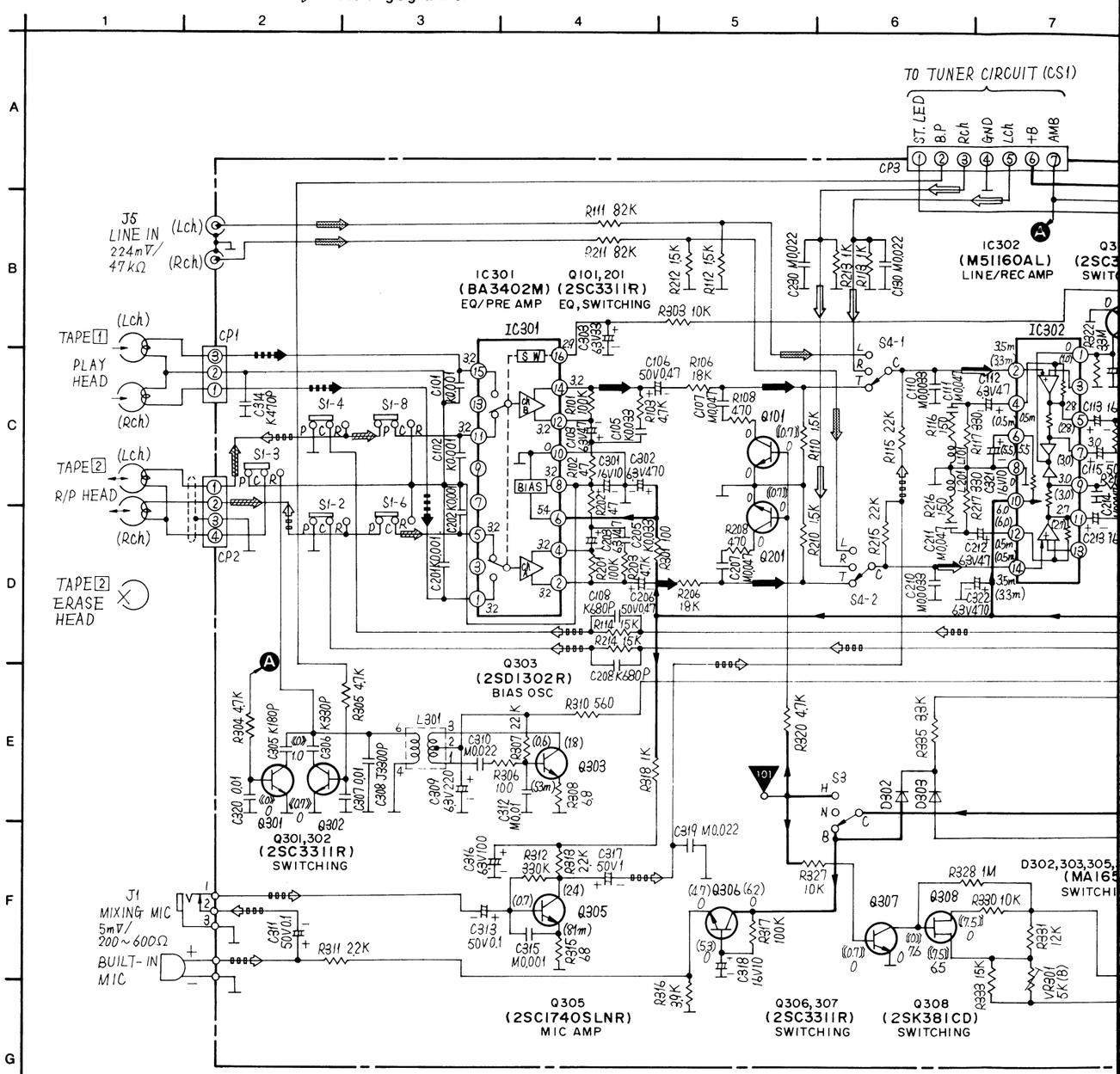
Important safety notice
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Z...For all European areas except E F G.
E...For United Kingdom.
F...For France.
G...For F.R. Germany.

Ref. No.	Part No.	Part Name & Description
		INTEGRATED CIRCUITS
IC1 Z E F	**AN7205**	IC (FM FRONT END)
IC1 G	**RViTA7358P**	IC (FM FRONT END)
IC2	**BA4236L**	IC (FM/AM IF AMP, DET, AM OSC, MIX)
IC3	**RViBA1332L**	IC (FM MPX)
IC301	**BA3402M**	IC (EQ/PRE AMP)
IC302	**M51160AL**	IC (LINE/REC AMP)
IC303	**LA4108R**	IC (POWER AMP)
IC305	**RViBA6433**	IC (AMBIENCE CONTROL)
IC901	**AN7332S**	IC (G.EQ AMP)
		TRANSISTORS
Q1	**2SC3313B**	Transistor (FM IF AMP)
Q101,201,301,302,306,307, 310,313	**2SC3311R**	Transistor (SWITCHING)
Q303,312	**2SD1302R**	Transistor (BIAS OSC, REGULATOR)
Q305	**2SC1740SLNR**	Transistor (MIC AMP)
Q308	**2SK381CD**	Transistor (SWITCHING)
		DIODES & RECTIFIERS
D1,2,3,4 D302,303,305,306,307	**MA165**	Diode (A.G.C, SWITCHING)
	MA165	Diode (SWITCHING)
D308	**MA4068M**	Diode (REGULATOR)
D310,311	**RVDSEL9203**	Diode (FM ST, POWER/BATT IND.)
D501,502,503,504	**RVD1SR35**	Diode (RECT)
		COILS
L2 Z E F	**RLD4Y53**	Coil, FM OSC
L2 G	**RL04N214**	Coil, FM OSC
L3	**RLF6W9**	Coil, LW/MW ANT
L4	**RLQY30S1**	Coil, Choke
L5,8	**RLA3B41**	Coil, SW ANT, SW OSC
L6	**RL01B13**	Coil, LW OSC
L7	**RL02B108**	Coil, MW OSC
L101,201	**RLQZB102K**	Coil, Choke
L202,303	**RLQY30S4**	Coil, Choke
L301	**RL09B17**	Coil, Bias OSC
L302	**RLQZD101K**	Coil, Choke
		TRANSFORMERS
T1,3	**RLI4B153**	IFT, FM 1st, 2nd
T2	**RLI2B153**	IFT, AM
T501 Z F G	**RLT5K3G5A**	Power Transformer ⚠
T501 E	**RLT5K3A4A**	Power Transformer ⚠
		VARIABLE CAPACITORS
VC1,2,3,4 (CT1,2,4,7)	**RCV4RC2V2K**	Variable Capacitor/With Trimmer Capacitor
		TRIMMER CONDENSERS
CT3	**RCVCTC30U**	Trimmer Capacitor
CT5	**RCVMFTPC7B**	Fine Tuning
CT6,8	**RCVCTC20U**	Trimmer Capacitor
		VARIABLE RESISTORS
VR1	**EVND4AA00B14**	FM VCO Adjustment VR (10 kΩ/B)
VR101,201	**EWH8MAF10G15**	Balance Control VR, (100 kΩ/G)
VR102,202	**EWCUHAF15A54**	Volume Control VR, (50 kΩ/A)
VR301	**EVND4AA00B53**	Tape Speed Adjustment VR, (5 kΩ/B)
VR901	**EVBJT2PA2201**	G, EQ Control VR (2.2 kΩ/A)
		CERAMIC FILTERS
CF1	**RVF107WDZ**	Ceramic Filter (10.7 MHz)
CF2 Z F G	**RVFSFZ455JZ**	Ceramic Filter (455 KHz)
CF2 E	**RVFSFZ470JZ**	Ceramic Filter (470 KHz)
		IC PROTECTOR
IP301	**RAHICPN5**	IC Protector
		FILTER
Z1	**RXABPMB6A**	Component Combinations
		SWITCHES
S1	**RSH2H03W**	Slide Switch, Record/Playback
S2,3	**RSS3A15Z**	Slide Switch, Mode/B.P, Editing Mode
S4	**RSS3D21Z**	Slide Switch, Function Selector
S6	**RSS4H04Z**	Slide Switch, Band
		JACKS
J1	**RJJ1D20Y**	Jack, Mixing MIC
J2	**RJJ1D27Z**	Jack, Headphones
J5	**RJF1096Z**	Jack, LINE IN
J501 Z F G	**RJJA6Z**	Jack, AC IN ⚠
J501 E	**RJJA7Z**	Jack, AC IN ⚠

SCHEMATIC DIAGRAM (for M

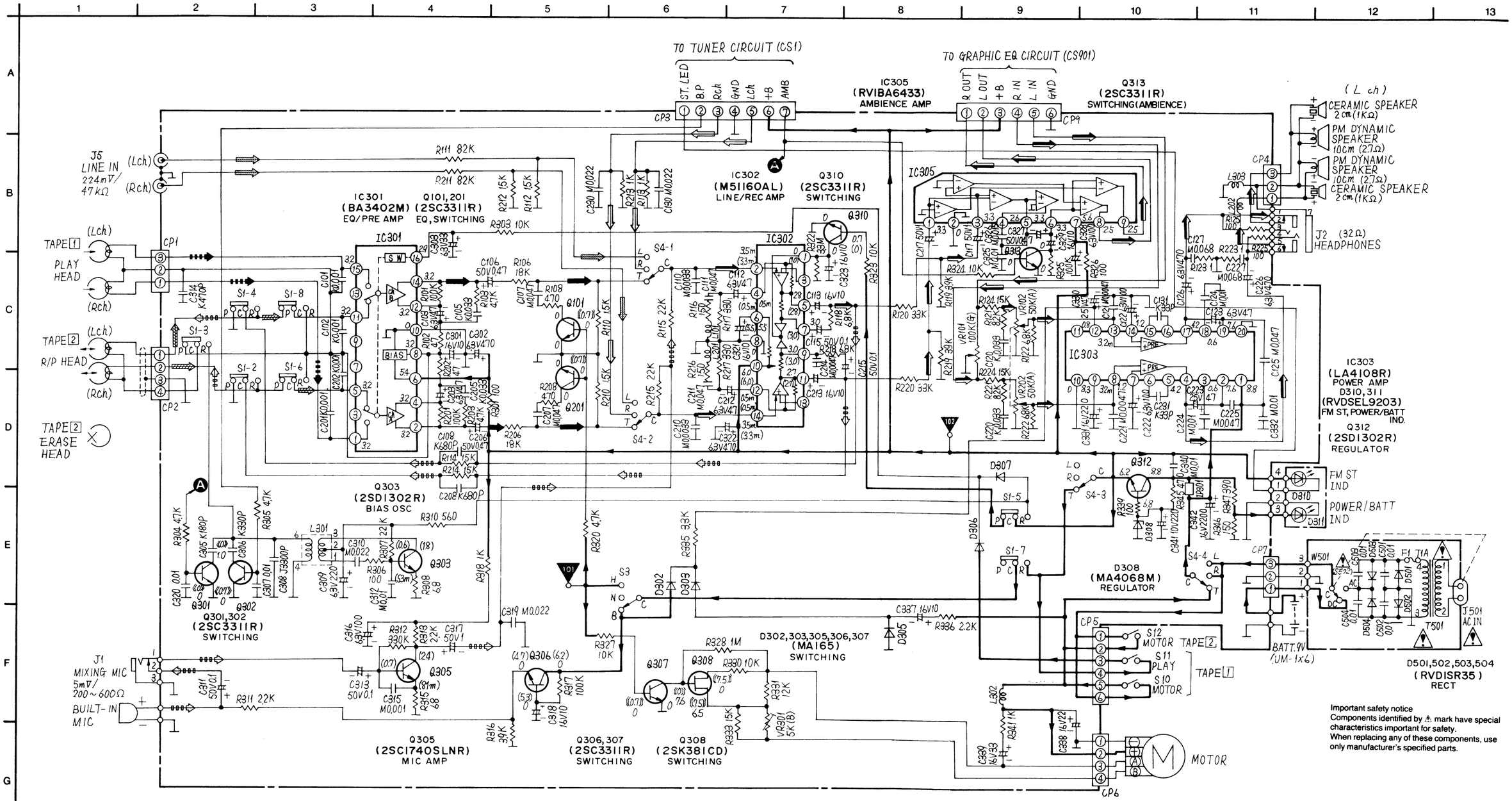
: Playback signal line. (Tape 1)
: Playback signal line. (Tape 2)
: Playback signal line. (Tape 1/Tape 2)
: Recording signal line.



SCHEMATIC DIAGRAM (for Main Section)

: Playback signal line. (Tape 1)
: Playback signal line. (Tape 2)
: Playback signal line. (Tape 1/Tape 2)
: Recording signal line.

: Input (LINE IN) signal line.
: Main (Tape/Radio) signal line.
: Radio (FM) signal line.
: +Ⓑ Voltage Line

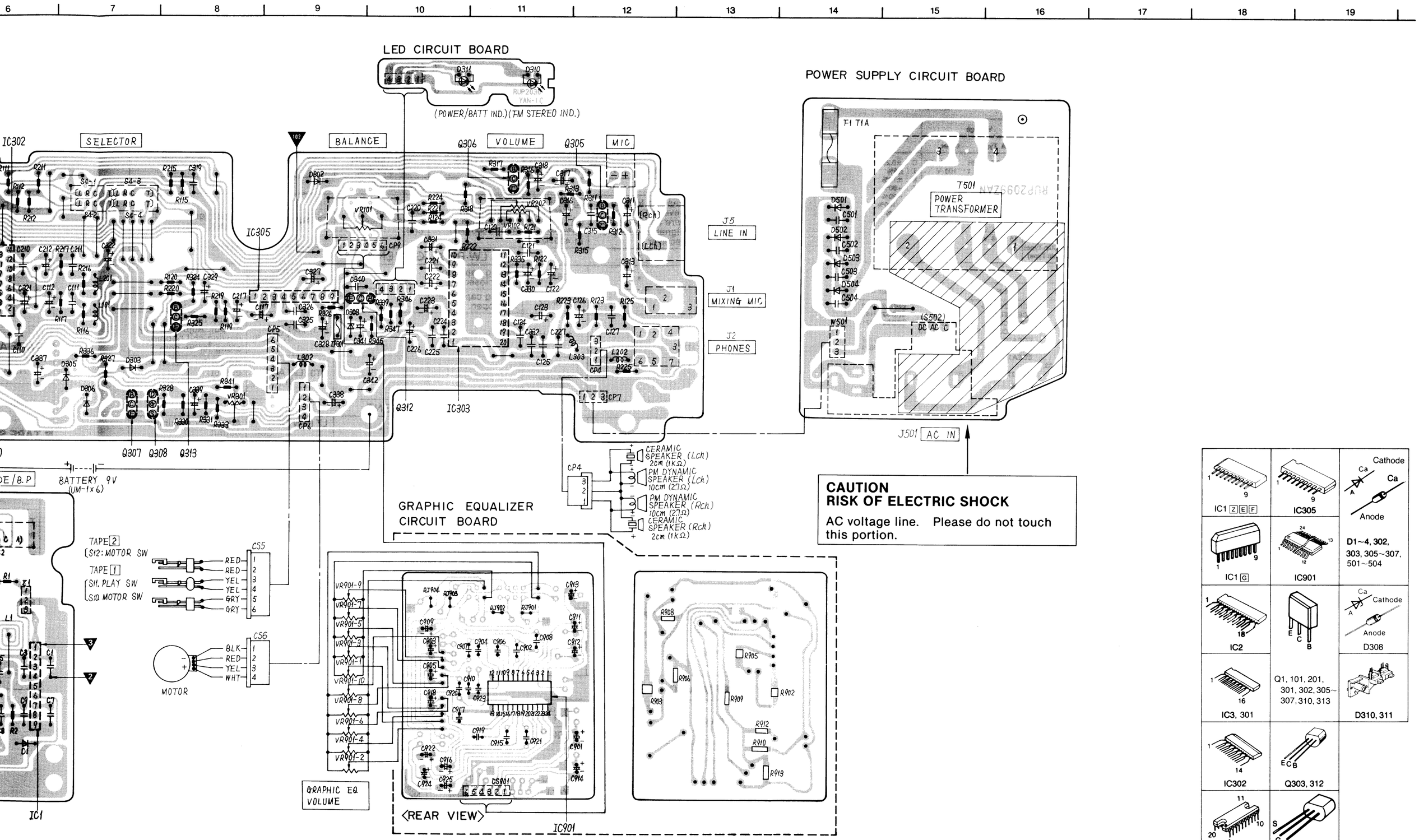


Important safety notice
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM

R/P HEAD (TAPE 2)
PLAY HEAD (TAPE 1)
LED CIRCUIT BOARD
(POWER/BATT IND.) (FM STEREO IND.)
MAIN CIRCUIT BOARD
EDITING
SELECTOR
BALANCE
VOLUME
MIC
J5 LINE IN
J1 MIXING MIC
J2 PHONES
TELESCOPIC ANTENNA
MODE/B.P
BATTERY 9V (UM-1×6)
BAND
FINE TUNING
TAPE 2 (S12: MOTOR SW
TAPE 1 (S11 PLAY SW
S10 MOTOR SW
MOTOR
CERAMIC SPEAKER (Lch) 2cm (1KΩ)
PM DYNAMIC SPEAKER (Lch) 10cm (27Ω)
PM DYNAMIC SPEAKER (Rch) 10cm (27Ω)
CERAMIC SPEAKER (Rch) 2cm (1KΩ)
GRAPHIC EQUALIZER CIRCUIT BOARD
GRAPHIC EQ VOLUME
<REAR VIEW>
TUNER CIRCUIT BOARD

CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM



CAUTION
RISK OF ELECTRIC SHOCK

AC voltage line. Please do not touch this portion.

ELECTRICAL PARTS LIST

Numbering System of Resistor

Example

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value (100Ω)
ERX	2	AN	J	2R2
Type	Wattage	Shape	Tolerance	Value (2.2Ω)

Resistor Type	Wattage Tolerance
ERD: Carbon ERD: Metal Film ERX: Metal Film ERQ: Fuse Type Metal RRD: Carbon (Chip Type)	10 : ⅛ W J : ±5% 12 : ½ W 25 : ¼ W 1 : 1 W 18 : ⅛ W

Numbering System of Capacitor

Example

ECKD	1H	102	Z	F
Type	Voltage	Value (1000 pF)	Tolerance	Peculiarity
ECEA	50	M	R47	
Type	Voltage	Peculiarity	Value (0.47 μF)	

Capacitor Type	Voltage		Tolerance
	ECEA Type	Other	
ECEA: Electrolytic ECCD: Ceramic ECKD: Ceramic ECQM: Polyester ECQP: Polypropylene ECET: Electrolytic ECEA□□□N: Non Polar Electrolytic QCU □: Ceramic (Chip Type) ECUX: Ceramic (Chip Type)	OJ : 6.3 V 1A : 10 V 1C : 16 V 1E : 25 V 1H : 50 V 1V : 35 V 50 : 50 V 25 : 25 V 16 : 16 V	2H : 500 V DC 1 : 100 V DKC : 400 V AC	C : ±0.25 pF J : ±5% K : ±10% Z : +80%, −20% P : +100%, −0%

[Z]...For all European areas except [E] [F] [G].
[E]...For United Kingdom.
[F]...For France.
[G]...For F.R. Germany.

Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.
CAPACITORS		C105,120,205, 220	**ECFT1C333KD**	C326	**ECFT1C153MD**	305,320	**ERDS2TJ472**
C1,5,9	**ECKD1H102MD**	C106,206,327	**ECEA1HUR47**	C330	**ECEA1EU4R7**	R106,206	**ERDS2TJ183**
C2,7	**ECCD1H180KC**	C107,111,125, 207,211,225	**ECFT1C473MD**	C331	**ECEA1CU221**	R108,208,345	**ERDS2TJ471**
C3	**ECCD1H040C**	C108,208	**ECKD1H681KB**	C338	**ECEA1CU220**	R110,112,210, 212	**ERDS2TJ152**
C6 [Z] [E] [F]	**ECCD1H150KC**	C110,210	**ECKD1H332MD**	C339	**ECEA1CU330**	R111,211	**ERDS2TJ823**
C6 [G]	**ECCD1H180KU**	C113,213,301, 318,321,323,329, 337	**ECEA1CU100**	C341	**ECEA1AU221**	R113,213,318, 341	**ERDS2TJ102**
C8	**ECCD1H470KC**			C342	**ECEA1CU222**	R114,124,214, 224,333	**ERDS2TJ153**
C10,11	**ECKD1H103ZF**			C501,502,503, 504	**ECKD1H103ZF**	R115,215,307	**ERDS2TJ223**
C12	**ECCD1H390KC**			**RESISTORS**		R116,216,346	**ERDS2TJ151**
C15	**ECCD1H10KC**			R1,2,32	**ERDS2TJ101**	R117,217	**ERDS2TJ331**
C16	**ECCD1H220KC**	C115,215,311, 313	**ECEA1HU0R1**	R3	**ERDS2TJ180**	R118,122,218, 222	**ERDS2TJ682**
C17	**ECCD1H070DC**	C117,217,317	**ECEA1HU010**	R5	**ERDS2TJ332**	R119,219,316	**ERDS2TJ392**
C18,30,35,37,42, 57	**ECFT1C223MD**	C121,214,221	**ECKD1H472MD**	R6	**ERDS2TJ824**	R120,220	**ERDS2TJ333**
C20,25	**ECCD1H100KC**	C122,222,316, 328	**ECEA0JU101**	R7	**ERDS2TJ331**	R121,221	**ERDS2TJ822**
C22	**ECQP2A221JZ**	C123,223	**ECEA1EU470**	R8	**ERDS2TJ221**	R123,223	**ERDS2TJ1R0**
C23	**ECQP2A151JZ**	C124,224,332, 340	**ECKD1H103MD**	R12,13	**ERDS2TJ470**	R125,225,301, 306,326,339	**ERDS2TJ101**
C26	**ECQP2A361JZ**	C126,226,302, 322	**ECEA0JU471**	R16	**ERDS2TJ222**	R303,323,324, 327,330	**ERDS2TJ103**
C27	**ECQP2A392JZ**	C127,227	**ECFT1C683MD**	R17 [Z] [E] [G]	**ERDS2TJ223**	R308	**ERDS2TJ6R8**
C31	**ECEA1HU2R2**	C130,230,310, 319	**ECFT1C223MD**	R17 [F]	**ERDS2TJ102**	R310	**ERDS2TJ561**
C36	**ECEA0JU221**	C131,231	**ECCD1H330KC**	R20	**ERDS2TJ680**	R311,313,336	**ERDS2TJ222**
C38 [Z] [E] [G]	**ECFT1C103MD**	C303	**ECEA0JU330**	R21	**ERDS2TJ472**	R312	**ERDS2TJ334**
C38,40,41 [F]	**ECFT1C333MD**	C305	**ECCD1H181K**	R22,23	**ERDS2TJ821**	R315	**ERDS2TJ680**
C40,41 [Z] [E] [G]	**ECFT1C153MD**	C306	**ECCD1H331K**	R24	**ERDS2TJ104**	R322	**ERDS2TJ335**
C43	**ECCD1H331K**	C307,320	**ECKD1H103ZF**	R25	**ERDS2TJ822**	R328	**ERDS2TJ105**
C45	**ECEA1CU100**	C308	**ECQP2A332JZ**	R26,27	**ERDS2TJ392**	R331	**ERDS2TJ123**
C46,50,54,55	**ECEA1HU010**	C309	**ECEA0JU221**	R28,29 [Z] [E] [G]	**ERDS2TJ682**	R335	**ERDS2TJ332**
C47,52,53	**ECFT1C153MD**	C312,325	**ECFT1C103MD**	R28,29 [F]	**ERDS2TJ183**	R347	**ERDS2TJ391**
C48	**ECEA1HU0R1**	C314	**ECKD1H471KB**	R30	**ERDS2TJ471**		
C51	**ECQP2A102JZ**	C315	**ECKD1H102MD**	R31	**ERDS2TJ561**		
C101,102,201, 202	**ECKD1H102KB**			R101,201,317, 325	**ERDS2TJ104**		
C103,112,203, 212	**ECEA0JU470**			R102,202	**ERDS2TJ470**		
				R103,203,304,			

MEASUREMENTS AND ADJUSTMENTS

■ ALIGNMENT INSTRUCTION

[Z]...For all European areas except [E] [F] [G].
[E]...For United Kingdom.
[F]...For France.
[G]...For F.R. Germany.

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

1. Set volume control to maximum.
2. Set equalizer control to center.
3. Set band switch to LW, MW, SW or FM ST.
4. Set balance control to center.
5. Set function selector to radio.
6. Set fine tuning to center.
7. Set editing switch to normal.
8. Set power source voltage to 9 V DC.
9. Output of signal generator should be no higher than necessary to obtain an output reading.

■ LW, MW and SW ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR CONNECTIONS	SIGNAL GENERATOR or SWEEP GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
		AM-IF ALIGNMENT					
(1)	MW	Fashion loop of several turns of wire and radiate signal into loop of receiver.	[Z] [F] [G] ...455 kHz [E]...470 kHz 30% Mod. at 400 Hz	Point of non-interference. (on/about 600 kHz)	Output meter across voice coil.	T2 (AM IFT)	Adjust for maximum output.
		LW-RF ALIGNMENT					
(2)	LW	〃	136 kHz	Tuning capacitor fully closed.	〃	L6 (LW OSC Coil)	〃
(3)	LW	〃	297 kHz	Tuning capacitor fully open.	〃	CT6 (LW OSC Trimmer)	〃
(4)	LW	〃	145 kHz	Tune to signal.	〃	(＊1) L3-1 (LW ANT Coil)	Adjust for maximum output. Adjust L3-1 by moving coil bobbin along ferrite core.
(5)	LW	〃	285 kHz	〃	〃	CT3 (LW ANT Trimmer)	Adjust for maximum output. Repeat steps (2)～(5).
		MW-RF ALIGNMENT					
(6)	MW	〃	511 kHz	Tuning capacitor fully closed.	〃	L7 (MW OSC Coil)	Adjust for maximum output.
(7)	MW	〃	1,650 kHz	Tuning capacitor fully open.	〃	CT7 (MW OSC Trimmer)	〃
(8)	MW	〃	550 kHz	Tune to signal.	〃	(＊1) L3-2 (MW ANT Coil)	Adjust for maximum output. Adjust L3-2 by moving coil bobbin along ferrite core.
(9)	MW	〃	1,500 kHz	〃	〃	CT4 (MW ANT Trimmer)	Adjust for maximum output. Repeat steps (6)～(9).
	(＊1) Cement antenna bobbin with wax after completing alignment.						
		SW-RF ALIGNMENT					
(10)	SW	Connect to test point ▼1 through ceramic capacitor (10 pF). Negative side to test point ▼2.	5.75 MHz	Tuning capacitor fully closed.	〃	L8 (SW OSC Coil)	Adjust for maximum output.
(11)	SW		18.8 MHz	Tuning capacitor fully open.	〃	CT8 (SW OSC Trimmer)	〃
(12)	SW		5.9 MHz	Tune to signal.	〃	L5 (SW ANT Coil)	Adjust for maximum output. Repeat steps (10)～(12).

■ FM ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR CONNECTIONS	SIGNAL GENERATOR or SWEEP GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
		FM-IF ALIGNMENT					
(1)	FM	High side thru. 0.001 μF to test point ▼3. Negative side to test point ▼2.	10.7 MHz (SWP.)	Point of non-interference. (on/about 90 MHz)	Connect vert. amp. of scope to test point ▼4. Negative side to test point .	T1 (FM 1st IFT)	Adjust for maximum amplitude. (Refer to fig. 2.)
(2)	FM	〃	〃	〃	〃	T3 (FM 2nd IFT)	Adjust for maximum amplitude. (Refer to fig. 3.)

MEASUREMENTS AND ADJUSTMENTS

■ ALIGNMENT INSTRUCTION

Z...For all European areas except E F G.
E...For United Kingdom.
F...For France.
G...For F.R. Germany.

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

1. Set volume control to maximum.
2. Set equalizer control to center.
3. Set band switch to LW, MW, SW or FM ST.
4. Set balance control to center.
5. Set function selector to radio.
6. Set fine tuning to center.
7. Set editing switch to normal.
8. Set power source voltage to 9 V DC.
9. Output of signal generator should be no higher than necessary to obtain an output reading.

■ LW, MW and SW ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR CONNECTIONS	SIGNAL GENERATOR or SWEEP GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
			AM-IF ALIGNMENT				
(1)	MW	Fashion loop of several turns of wire and radiate signal into loop of receiver.	Z F G ...455 kHz E...470 kHz 30% Mod. at 400 Hz	Point of non-interference. (on/about 600 kHz)	Output meter across voice coil.	T2 (AM IFT)	Adjust for maximum output.
			LW-RF ALIGNMENT				
(2)	LW	〃	136 kHz	Tuning capacitor fully closed.	〃	L6 (LW OSC Coil)	〃
(3)	LW	〃	297 kHz	Tuning capacitor fully open.	〃	CT6 (LW OSC Trimmer)	〃
(4)	LW	〃	145 kHz	Tune to signal.	〃	(*1) L3-1 (LW ANT Coil)	Adjust for maximum output. Adjust L3-1 by moving coil bobbin along ferrite core.
(5)	LW	〃	285 kHz	〃	〃	CT3 (LW ANT Trimmer)	Adjust for maximum output. Repeat steps (2)~(5).
			MW-RF ALIGNMENT				
(6)	MW	〃	511 kHz	Tuning capacitor fully closed.	〃	L7 (MW OSC Coil)	Adjust for maximum output.
(7)	MW	〃	1,650 kHz	Tuning capacitor fully open.	〃	CT7 (MW OSC Trimmer)	〃
(8)	MW	〃	550 kHz	Tune to signal.	〃	(*1) L3-2 (MW ANT Coil)	Adjust for maximum output. Adjust L3-2 by moving coil bobbin along ferrite core.
(9)	MW	〃	1,500 kHz	〃	〃	CT4 (MW ANT Trimmer)	Adjust for maximum output. Repeat steps (6)~(9).
	(*1) Cement antenna bobbin with wax after completing alignment.						
			SW-RF ALIGNMENT				
(10)	SW	Connect to test point ▼1 through ceramic capacitor (10 pF). Negative side to test point ▼2.	5.75 MHz	Tuning capacitor fully closed.	〃	L8 (SW OSC Coil)	Adjust for maximum output.
(11)	SW		18.8 MHz	Tuning capacitor fully open.	〃	CT8 (SW OSC Trimmer)	〃
(12)	SW		5.9 MHz	Tune to signal.	〃	L5 (SW ANT Coil)	Adjust for maximum output. Repeat steps (10)~(12).

■ FM ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR CONNECTIONS	SIGNAL GENERATOR or SWEEP GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
			FM-IF ALIGNMENT				
(1)	FM	High side thru. 0.001 μF to test point ▼3. Negative side to test point ▼2.	10.7 MHz (SWP.)	Point of non-interference. (on/about 90 MHz)	Connect vert. amp. of scope to test point ▼4. Negative side to test point .	T1 (FM 1st IFT)	Adjust for maximum amplitude. (Refer to fig. 2.)
(2)	FM	〃	〃	〃	〃	T3 (FM 2nd IFT)	Adjust for maximum amplitude. (Refer to fig. 3.)

■ FM ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR CONNECTIONS	SIGNAL GENERATOR or SWEEP GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
			FM-RF ALIGNMENT				
(3)	FM	Connect to test point ▼1 through FM dummy antenna. Negative side to test point ▼2.	Z E F... 86.2 MHz G...87.5 MHz	Variable capacitor fully closed.	Output meter across voice coil.	L2 (FM OSC Coil)	(*2) Adjust for maximum output.
(4)	FM		Z E F... 109.2 MHz G...108 MHz	Variable capacitor fully open.	〃	CT2 (FM OSC Trimmer)	〃
(5)	FM		106 MHz	Tune to signal.	〃	CT1 (FM ANT Trimmer)	(*2) Adjust for maximum output. Repeat steps (3)~(5).
	(*2) Three output responses will be present; proper tuning is the center frequency.						

■ SEPARATION ALIGNMENT

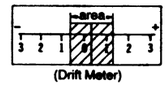
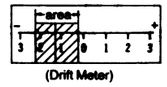
ITEM	FM SIGNAL GENERATOR SOURCE CONNECTION	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	SPECIFICATION	REMARKS
Adjustment of pilot signal.	98 MHz, 60 dB Connect to test point ▼1 through FM dummy antenna. Negative side to test point ▼2.	▼6...(+) ▼7...(–)	VR1	19 kHz	Adjust VR1, for 19 kHz (±100 Hz) reading on electronics counter.

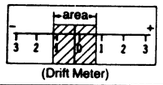
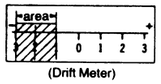
■ TAPE ADJUSTMENT

ITEM	INPUT	MEASUREMENT POINT	SPECIFICATION	ADJUSTMENT POINT	REMARKS
Azimuth	QZZCFM (8 kHz, –20 dB)	SP OUT (AC voltmeter & Oscilloscope)	Maximum output.	Azimuth screw	Playback mode Mode/B.P.→STEREO/II (Refer to Fig. 4)

■ TAPE SPEED ADJUSTMENT

Tape 2 is driven by the tape 1 motor, so there is no need to adjust the tape speed for tape 2. (The tape speeds of tape 1 and tape 2 differ due to the diameter of the flywheels. The flywheel for tape 1 has 4 molding marks, and that for tape 2 has 3. (See Figs. 5 and 6.)

ITEM	INPUT	MEASUREMENT POINT	ADJUSTMENT POINT	REMARKS
Tape speed adjustment for normal speed Tape 1.	QZZCWAT (3 kHz)	Headphones jack	VR301	3010±30 Hz (Refer to the figure below when using a drift meter.)  (Drift Meter)
High speed Tape 1	QZZCWC (1.5 kHz)	Headphones jack	–	Short TP101 and TP102 to double the speed of tape 1. Note: Cannot be adjusted, but value for reference is about 2955±30 Hz. (Refer to figure below when using a drift meter.)  (Drift Meter)

ITEM	INPUT	MEASUREMENT POINT	ADJUSTMENT POINT	REMARKS
Normal speed Tape [2]	QZZCWAT (3 kHz)	Headphones jack	–	(1) Remove the short between TP101 and TP102 to return tape [2] to normal speed. (2) About 2997 Hz (3010 Hz is base frequency when tape [1] is at normal speed.) Note: Cannot be adjusted, but recording value is used as a reference. (Refer to figure below when using a drift meter.) 
High speed Tape [2]	QZZCWC (1.5 kHz)	Headphones jack	–	(1) Short TP101 and TP102 to double the speed of tape [2]. (2) About 2938 Hz (2955 Hz is base frequency when tape [1] is at normal speed.) Note: Cannot be adjusted, but recording value is used as a reference. (Refer to figure below when using a drift meter.) 

Note: An extension cable (RZZ0418) can be used to connect the tuner circuit board.

■ ALIGNMENT POINT

• Please refer to Circuit Board and Wiring Connection Diagram for test point locations

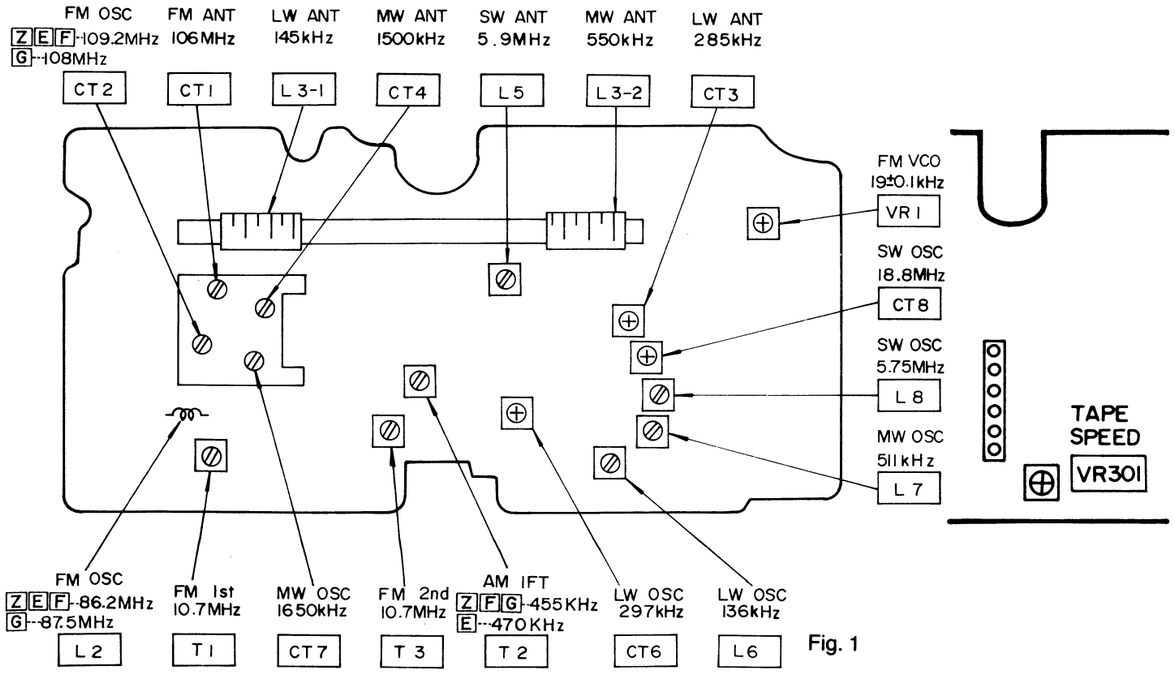


Fig. 1

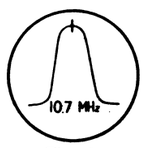


Fig. 2

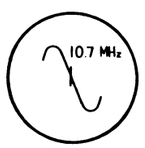


Fig. 3

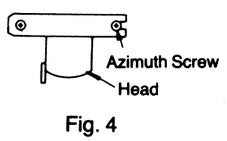


Fig. 4

■ FLYWHEEL

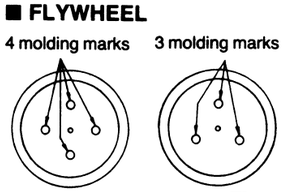
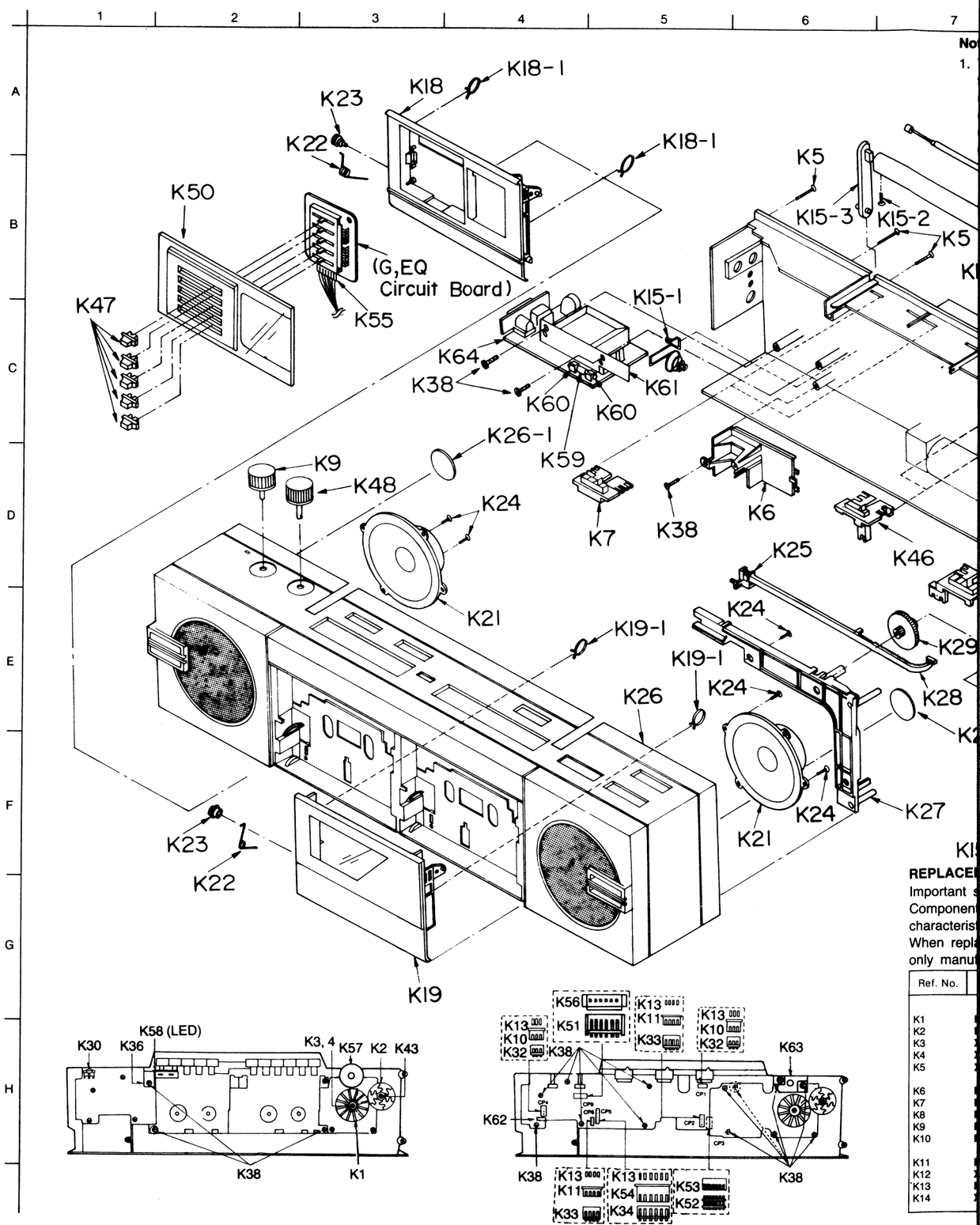


Fig. 5 Fig. 6

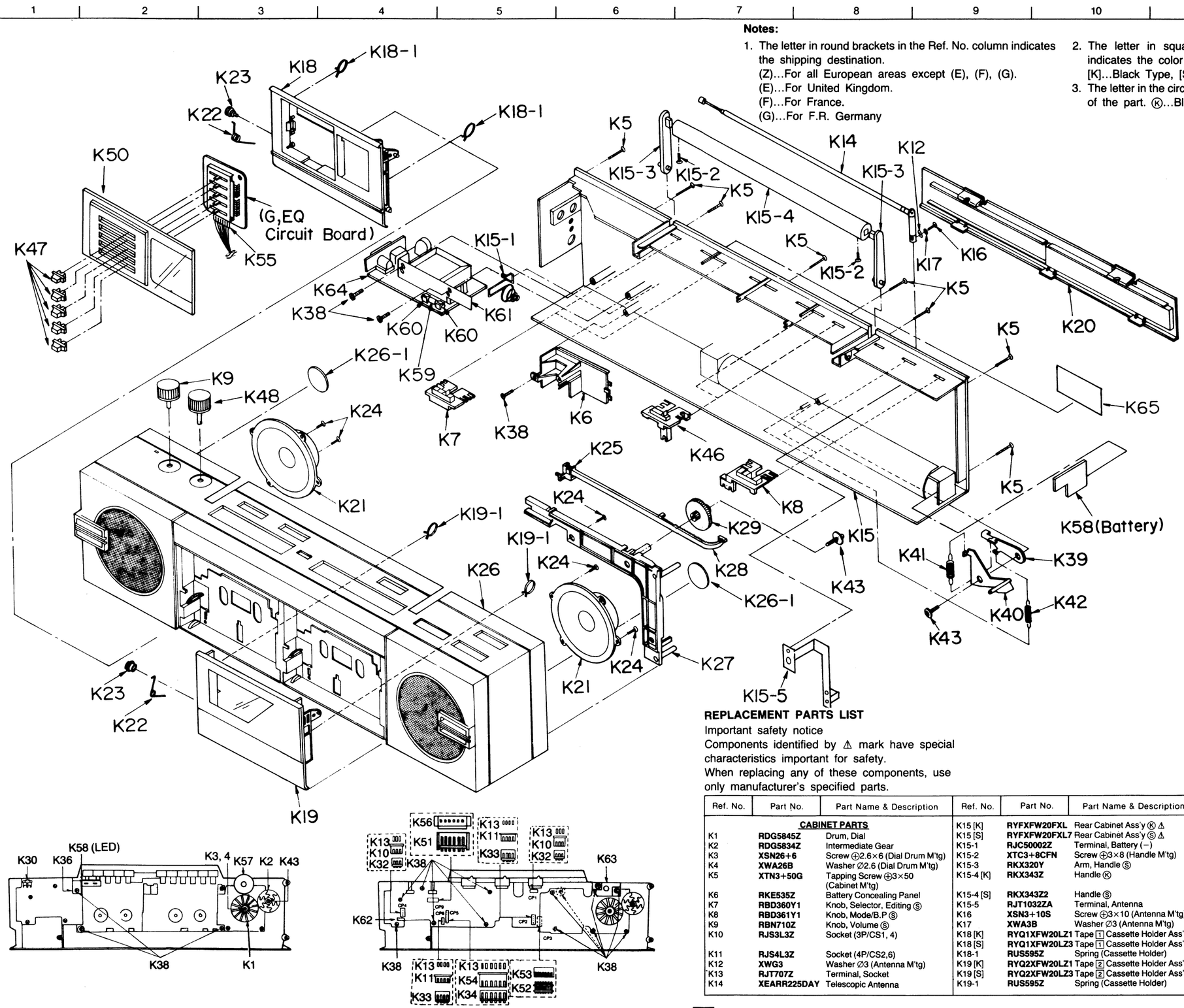
CABINET PARTS LO



REPLACE
Important
Componen
characteris
When repla
only manu

Ref. No.
K1
K2
K3
K4
K5
K6
K7
K8
K9
K10
K11
K12
K13
K14

CABINET PARTS LOCATION



Notes:

1. The letter in round brackets in the Ref. No. column indicates the shipping destination.
   (Z)...For all European areas except (E), (F), (G).
   (E)...For United Kingdom.
   (F)...For France.
   (G)...For F.R. Germany
2. The letter in square brackets in the Ref. No. column indicates the color of the product.
   [K]...Black Type, [S]...Silver Type
3. The letter in the circle after the part name indicates the color of the part. Ⓚ...Black, Ⓢ...Silver

REPLACEMENT PARTS LIST

Important safety notice
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Ref. No.	Part No.	Part Name & Description
		CABINET PARTS
K1	**RDG5845Z**	Drum, Dial
K2	**RDG5834Z**	Intermediate Gear
K3	**XSN26+6**	Screw ⊕2.6×6 (Dial Drum M'tg)
K4	**XWA26B**	Washer ∅2.6 (Dial Drum M'tg)
K5	**XTN3+50G**	Tapping Screw ⊕3×50 (Cabinet M'tg)
K6	**RKE535Z**	Battery Concealing Panel
K7	**RBD360Y1**	Knob, Selector, Editing Ⓢ
K8	**RBD361Y1**	Knob, Mode/B.P Ⓢ
K9	**RBN710Z**	Knob, Volume Ⓢ
K10	**RJS3L3Z**	Socket (3P/CS1, 4)
K11	**RJS4L3Z**	Socket (4P/CS2,6)
K12	**XWG3**	Washer ∅3 (Antenna M'tg)
K13	**RJT707Z**	Terminal, Socket
K14	**XEARR225DAY**	Telescopic Antenna
K15 [K]	**RYFXFW20FXL**	Rear Cabinet Ass'y Ⓚ ⚠
K15 [S]	**RYFXFW20FXL7**	Rear Cabinet Ass'y Ⓢ ⚠
K15-1	**RJC50002Z**	Terminal, Battery (–)
K15-2	**XTC3+8CFN**	Screw ⊕3×8 (Handle M'tg)
K15-3	**RKX320Y**	Arm, Handle Ⓢ
K15-4 [K]	**RKX343Z**	Handle Ⓚ
K15-4 [S]	**RKX343Z2**	Handle Ⓢ
K15-5	**RJT1032ZA**	Terminal, Antenna
K16	**XSN3+10S**	Screw ⊕3×10 (Antenna M'tg)
K17	**XWA3B**	Washer ∅3 (Antenna M'tg)
K18 [K]	**RYQ1XFW20LZ1**	Tape [1] Cassette Holder Ass'y Ⓚ
K18 [S]	**RYQ1XFW20LZ3**	Tape [1] Cassette Holder Ass'y Ⓢ
K18-1	**RUS595Z**	Spring (Cassette Holder)
K19 [K]	**RYQ2XFW20LZ1**	Tape [2] Cassette Holder Ass'y Ⓚ
K19 [S]	**RYQ2XFW20LZ3**	Tape [2] Cassette Holder Ass'y Ⓢ
K19-1	**RUS595Z**	Spring (Cassette Holder)

Ref. No.	Part No.	Part Name & Description
K20 [K]	**RYNXFW20J**	Battery Cover Ass'y Ⓚ
K20 [S]	**RYNXFW20J94**	Battery Cover Ass'y Ⓢ
K21	**EAS10P241SG**	Speaker, Woofer
K22	**RUS645Z**	Spring (Cassette Holder)
K23	**RDG5782Z**	Dumper Gear Ass'y
K24	**XTV3+8G**	Screw ⊕3×8 (Speaker, Dial Chassis M'tg)
K25	**RDP303Z**	Pointer Ⓦ
K26 (Z) (F) [K]	**RYMXFW20LZ**	Front Cabinet Ass'y Ⓚ
K26 (Z) (F) [S]	**RYMXFW20LZ8**	Front Cabinet Ass'y Ⓢ
K26 (E) [K]	**RYMXFW20LZE**	Front Cabinet Ass'y Ⓚ ⚠
K26 (E) [S]	**RYMXFW20LZE8**	Front Cabinet Ass'y Ⓢ ⚠
K26 (G) [K]	**RYMXFW20LZG**	Front Cabinet Ass'y Ⓚ
K26 (G) [S]	**RYMXFW20LZG8**	Front Cabinet Ass'y Ⓢ
K26-1	**RAF04E4A01**	Speaker, Tweeter
K27	**RUA667Z**	Dial Chassis
K28	**RDE156Z**	Rack, Pointer
K29	**RBT254Z**	Knob, Tuning
K30	**RJM157Z**	Built-in Microphone
K32	**RJP3G4Y**	Plug (3P/CP1, 4)
K33	**RJP4G4Y**	Plug (4P/CP2, 6)
K34	**RJP6G4Y**	Plug (6P/CP5)
K36	**RJT1031Z**	Terminal, Earth
K38	**XTV3+10G**	Tapping Screw ⊕3×10 (Mechanism, P.C.B etc M'tg)
K39	**RUB435Z**	Lever, Record/Playback
K40	**RUB436Z**	Lever, Record/Playback Connection
K41	**RUD47Z**	Spring (Record/Playback Connection Lever)
K42	**RUD46Z**	Spring (Record/Playback Lever)
K43	**XTWS3+10Q**	Screw ⊕3×10 (Intermediate Gear, R/P Lever, Tuning Knob M'tg)
K46	**RBD399ZA-1**	Knob, Band Selector Ⓢ
K47	**RBD400Z**	Knob, Graphic Equalizer Controls Ⓢ
K48	**RBN742Z**	Knob, Balance Ⓢ
K50	**RYPXFW20M**	Tape [1] Cassette Panel Ass'y
K51	**RJP6G20Z**	Plug (6P/CP9)
K52	**RJP7G21Z**	Plug (7P/CP3)
K53	**RJS7M2Y**	Socket (7P/CS3)
K54	**RJS6L3Z**	Socket (6P/CS5)
K55	**RJS6L15Z**	Socket (6P/CS901)
K56	**RJS6L16Z**	Socket (6P/CS9)
K57	**RBT277Z**	Knob, Fine Tuning Ⓢ
K58	**RUP2030Y**	P.C.B (LED, Battery)
K59	**XBA2C10TB0K**	Fuse (T1A) ⚠
K60	**RJF28Z**	Holder, Fuse ⚠
K61	**RMC1073Z**	Shield Plate
K62	**RJS3T5Z**	Socket (3P/CP7)
K63	**RUE56Z**	Holder, Fine Tuning Knob
K64	**RUP2099ZAN**	P.C.B. (Power Supply) ⚠
K65 (Z) (F) [K]	**RGT1227YA**	Name Plate
K65 (Z) (F) [S]	**RGT1227YA1**	Name Plate
K65 (E) [K]	**RGT1227XA**	Name Plate
K65 (E) [S]	**RGT1227XA1**	Name Plate
K65 (G) [K]	**RGT1227WA**	Name Plate
K65 (G) [S]	**RGT1227WA1**	Name Plate
		ACCESSORIES
A1 [Z][F][G]	**RJA20Z**	Power Cord, AC ⚠
A1 [E]	**RJA86Z**	Power Cord, AC ⚠
A2	**RQX4870ZA**	Operating Instructions
		PACKINGS
P1	**RPN9529Z**	Pad
P3	**RPP435Z**	Polyethylene Cover
P4	**RPN4872Z**	Pad (Top)
P5	**RPN5054Z**	Pad (Top)

RX-FW20L RX-FW

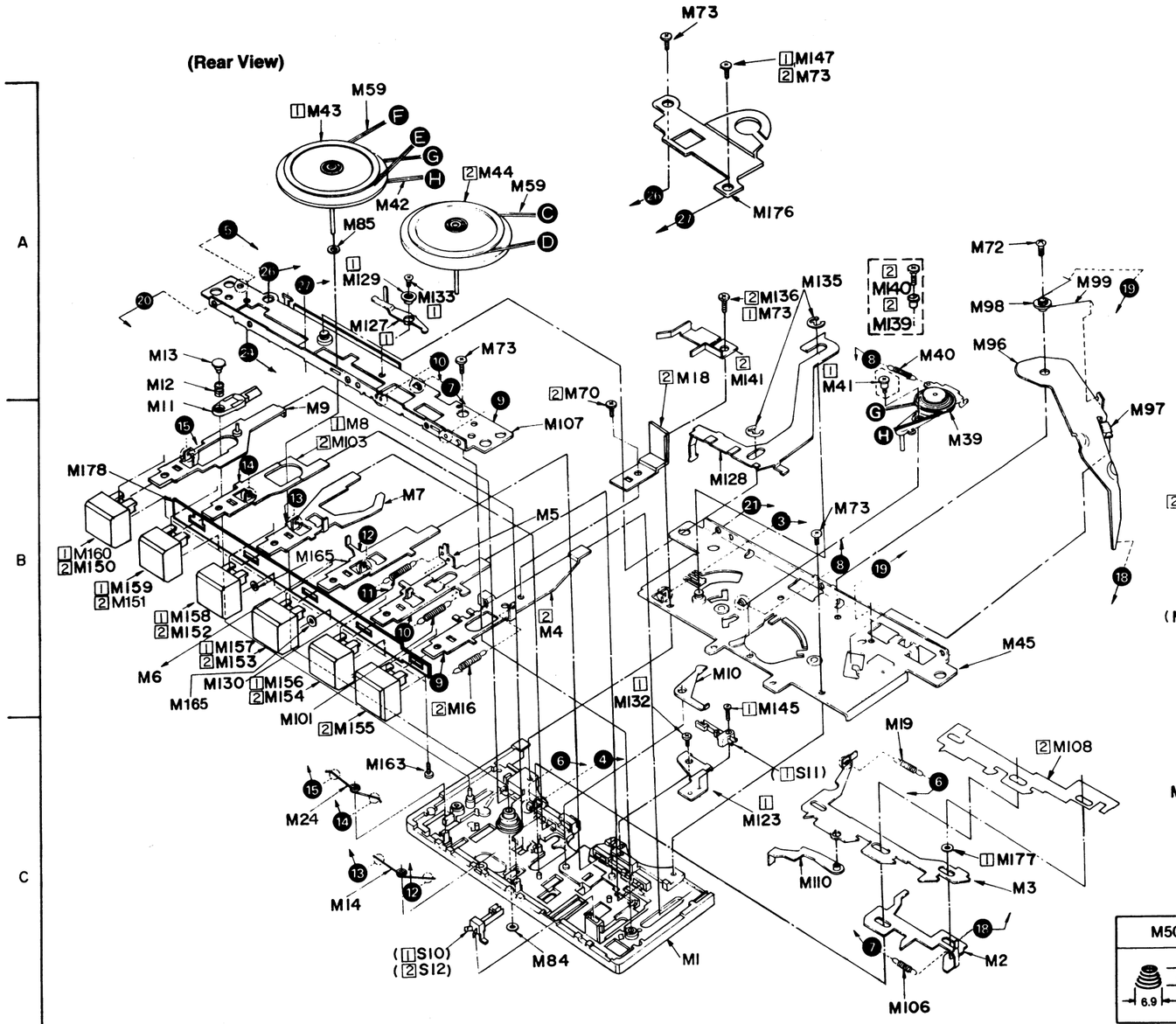
MECHANISM PARTS LOCATION

※There are three types of M171 used for adjustment of the head height. When servicing, they can be distinguished by their color.

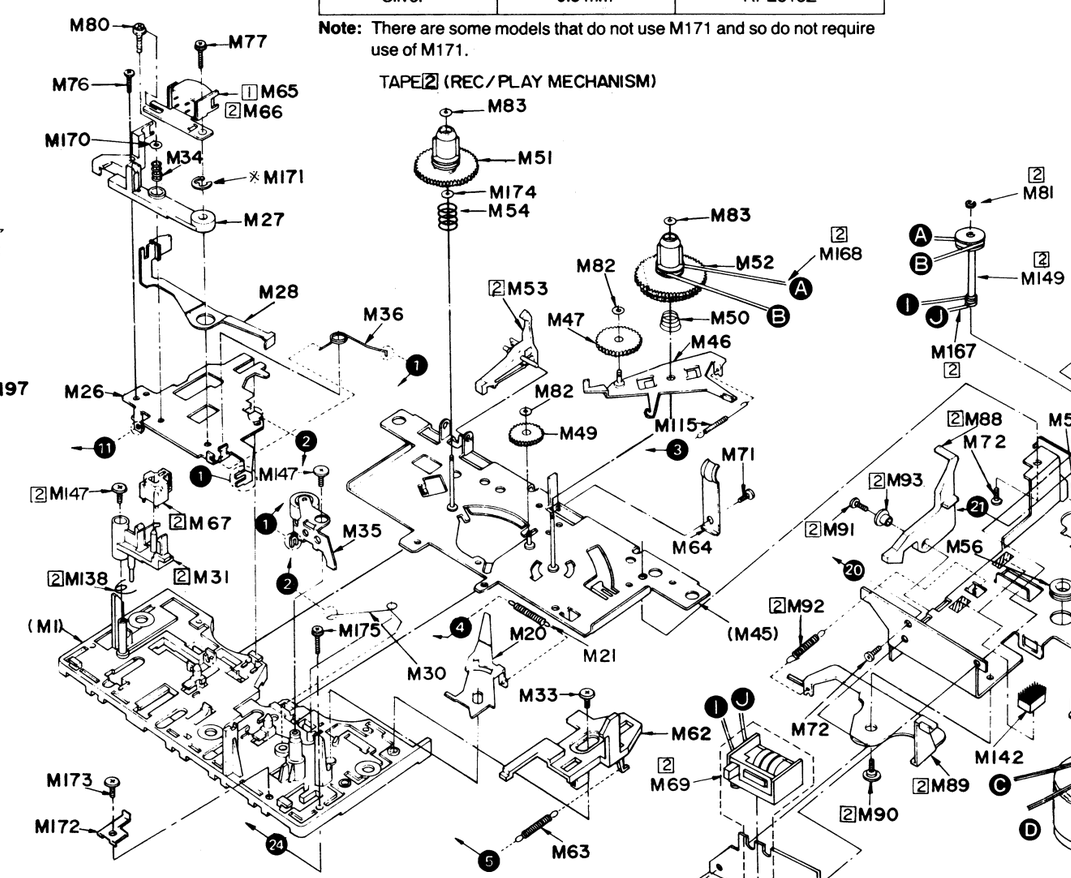
Color	Height	Part No.
Copper	0.1 mm	RFE313Z
Gold	0.2 mm	RFE314Z
Silver	0.3 mm	RFE315Z

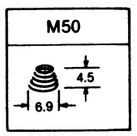
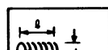
Note: There are some models that do not use M171 and so do not require use of M171.

(Rear View)



(Top View)



M50	M34	M54
	 ℓ ×d (mm)	4.7×3.7	6.5×6

Ref NO.	M12	M14	M16	M19	M21	M24	M30	M36	M40	M63	M92	M99	M101	M106	M115
D, L	5.1 x 3.2		19.8 x 2.4	10.6 x 2.2	8.3 x 2.2				9.9 x 2.2	18.4 x 2	14.5 x 2.5		14.9 x 2.7	9.8 x 2.3	14.5 x 2.2
ℓ1, ℓ2		10.5 x 10.5				10 x 10	5 x 18	4 x 17				25 x 25			

| | | | |

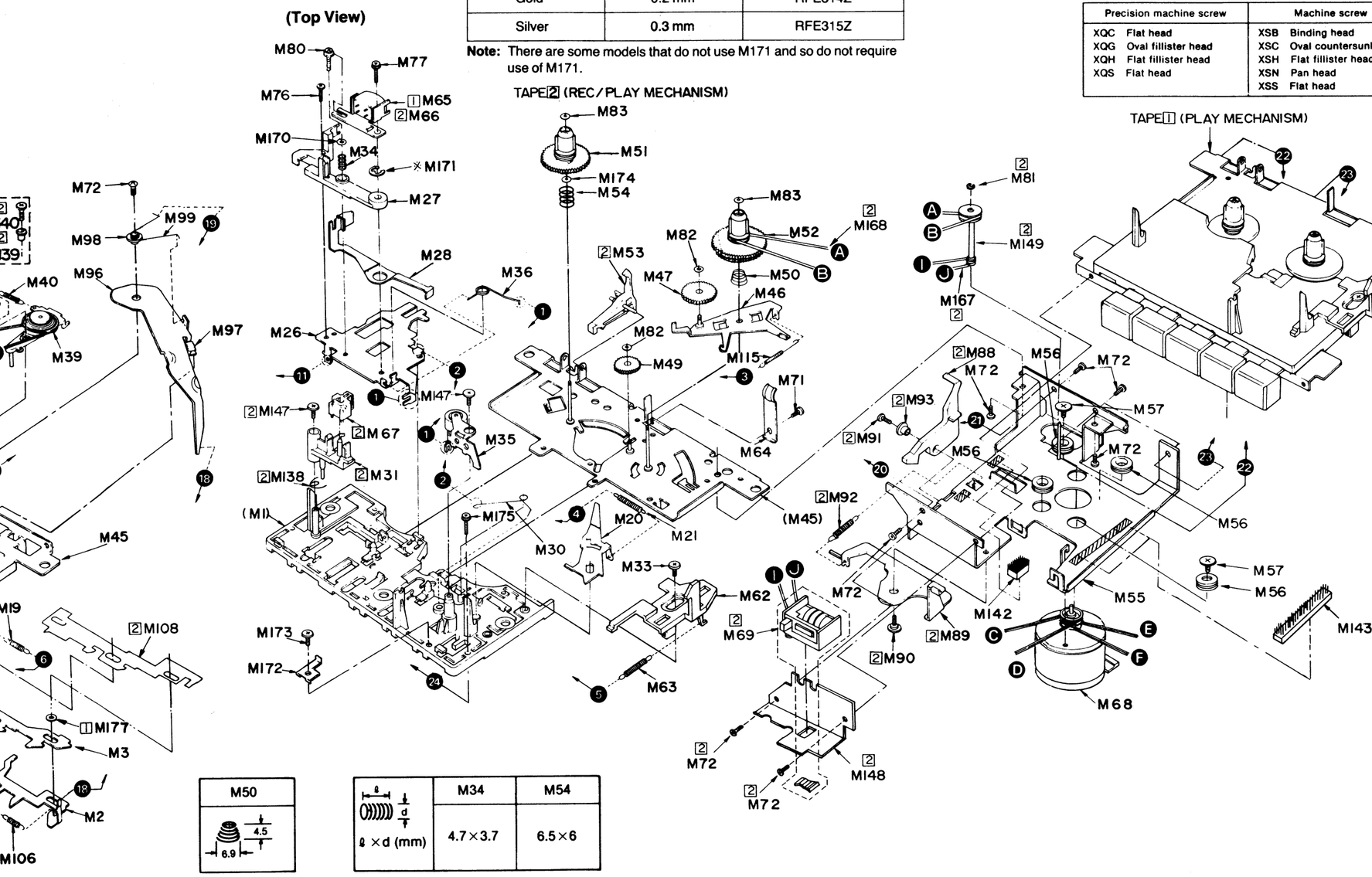
MECHANISM PARTS LOCATION

※There are three types of M171 used for adjustment of the head height. When servicing, they can be distinguished by their color.

Color	Height	Part No.
Copper	0.1 mm	RFE313Z
Gold	0.2 mm	RFE314Z
Silver	0.3 mm	RFE315Z

Note: There are some models that do not use M171 and so do not require use of M171.

(Top View)



M50	M34	M54
6.9, 4.5	ϕ×d (mm) 4.7×3.7	6.5×6

24	M30	M36	M40	M63	M92	M99	MI01	MI06	MI15	MI30	MI38
			9.9 x 2.2	18.4 x 2	14.5 x 2.5		14.9 x 2.7	9.8 x 2.3	14.5 x 2.2	15.5 x 2.7	
x 10	5 x 18	4 x 17				25 x 25					8 x 6

| | | | | |

■ MECHANISM PARTS LIST

REPLACEMENT PARTS LIST

The letter in the circle after the part name indicates the color of the part.
Ⓢ...Silver, Ⓐ...Cold, Ⓒ...Copper

Notes:

[1] ... TAPE-1 (PLAY DECK)
[2] ... TAPE-2 (REC/PLAY DECK)

※There are three types of M171 used for adjustment of the head height. When servicing, they can be distinguished by their color.

Ref. No.	Part. No.	Part Name & Description
		MECHANICAL PARTS
M1	RFU68Z	Button Base Ass'y
M2	RFY541Z	Lever, Switch Actuator
M3	RFY641Z	Lever, Push Button Actuator
M4 [2]	RFY542Z	Lever Ass'y, Record
M5	RFY649Z	Lever Ass'y Playback
M6	RFY650Z	Lever Ass'y, Rewind
M7	RFY651Z	Lever Ass'y, Fast Forward
M8 [1]	RFY546Z	Lever Ass'y, Stop/Eject
M9	RFY547Z	Lever Ass'y, Pause
M10	RFY548Z	Lever, Rewind
M11	RFG86Z	Cam, Pause
M12	RFS459Z	Spring (Pause Cam)
M13	RFS536Z	Stopper, Pause Cam
M14	RFS561Z	Spring (REW/F.F Lever)
M16 [2]	RFS463Z	Spring (Record Lever)
M18 [2]	RFS595Z	Spring (Record Lever)
M19	RFS466Z	Spring (Push Button Actuator Lever)
M20	RFY549Z	Lever, Auto Stop Actuator
M21	RFS596Z	Spring (Auto Stop Actuator Lever)
M24	RFS462Z	Spring (Stop • Eject/Pause Lever)
M26	RFU72Z	Head Panel
M27	RFU39Z	Head Base
M28	RFY394Z	Detection Lever Ass'y
M30	RFS568Z	Spring (Head Panel)
M31 [2]	RFY391Z	Arm, Erase Head
M33	XSN3+6	Screw ⊕3×6 (Stop/Eject Lever M'tg)
M34	RFS447Z	Spring (Azimuth Adj.)
M35	RFR36Z	Pinch Roller Ass'y
M36	RFS569Z	Spring (Pinch Roller Ass'y)
M39	RFQ42Z	RF Pulley Arm Ass'y
M40	RFS532Z	Spring (RF Pulley Arm)
M41 [1]	RFE172Z	Screw (RF Pulley Arm M'tg)
M42	RFB62Z	Belt, RF
M43 [1]	RFF39Z	Flywheel Ass'y
M44 [2]	RFF40Z	Flywheel Ass'y
M45	RFU79Z	Reel Table Base Ass'y
M46	RFY652Z	Lever, Take-up Reel Table Ass'y
M47	RFG61Z	Gear, Take-up Roller
M49	RFG62Z	Gear, Fast Forward
M50	RFS537Z	Spring(Back Tension(Takeup Side))
M51	RFJ50Z	Reel Table Ass'y, Supply
M52	RFJ44Z	Reel Table Ass'y, Take Up
M53 [2]	SMQ4778	Lever, Erase Safety
M54	RFS563Z	Spring (Back Tension (Supply Side))
M55	RFD253Z	Bracket, Motor
M56	RFI27Z	Cushion, Motor
M57	SMQ4918	Screw (Motor M'tg)
M59	RFB63Z	Belt, Main
M62	RFY581Z	Lever, Stop/Eject
M63	RFS564Z	Spring (Stop/Eject Lever)
M64	RFS534Z	Spring (Cassette Tape Holder)
M65 [1]	RJH4C09GY	Head, Playback
M66 [2]	RJH4C09GX	Head, Record/Playback
M67 [2]	RJH2C12XZ	Head, Erase
M68	RFM69Z	Motor Ass'y, with Pulley
M69 [2]	RSE207Z	Tape Counter
M70 [2]	RFE229Z	Screw (Record Lever M'tg)
M71	XTN2+3B	Screw ⊕2×3, (Cassette Tape Holder M'tg)
M72	XTN2+4B	Screw ⊕2×4, (Motor Bracket, Brake Lever M'tg)
M73	XSB2+4	Screw ⊕2×4, (Sub Chassis, Reel Table Base M'tg)
M76	RFE98Z	Screw (Head Base M'tg)
M77	XSN2+7	Screw ⊕2×7, (Record/Playback Head M'tg)
M80	RFE230Z	Screw (Azimuth Adj.)
M81 [2]	RFN131Z	Washer (Counter Intermediate Pulley)
M82	RFN143Z	Washer (Fast Forward Gear, Take-up Roller Gear)
M83	RFN142Z	Washer (Supply Reel Table, Take-up Reel Table)
M84	RFN123Z	Washer (Flywheel M'tg)
M85	RFN153Z	Washer (Flywheel)
M88 [2]	RFY582Z	Lever, Pause Kick (B)
M89 [2]	RFY583Z	Lever, Pause Kick (A)
M90 [2]	RFE239Z	Screw (Pause Kick Lever (A) M'tg)
M91 [2]	XTN2+6FN	Screw ⊕2×6 (Pause Kick Lever (B) M'tg)
M92 [2]	RFY585Z	Spring (Pause Kick Lever (A))
M93 [2]	RFX134Z	Collar, Pause Kick Lever (B)
M96	RFY601Z	Lever, Brake
M97	RFI37Z	Brake Shoe
M98	RFX133Z	Collar, Brake Lever
M99	RFS579Z	Spring (Brake Lever)
M101	RFS566Z	Spring (Playback Button Lever)
M103 [2]	RFY653Z	Lever Ass'y, Stop/Eject
M106	RFS567Z	Spring (Switch Actuator Lever)
M107	RFU70Z	Sub Chassis Ass'y
M108 [2]	RFY622Z	Stopper, RC
M110	RFY591Z	Lever, E Kick
M115	RFS570Z	Spring (Take-up Reel Table Lever)
M123 [1]	RFD230Z	Bracket, Switch
M127 [1]	RFY589Z	Lever, RC
M128	RFY573Z	Lever, RC Slide
M129 [1]	RFX130Z	Collar, RC Lever
M130	RFS572Z	Spring (RC)
M132 [1]	RFE221Z	Screw (Switch Bracket M'tg)
M133 [1]	XQS2+25	Screw (RC Lever M'tg)
M135	XUC2FT	Stop Ring (RC Slide Lever M'tg)
M136 [2]	RFE222Z	Screw (Pause Prevention Bracket M'tg)
M138 [2]	RFS535Z	Spring (Erase Head Arm)
M139 [2]	RFX132Z	Collar, Arm
M140 [2]	XSN17+4	Screw (RF Pulley Arm M'tg)
M141 [2]	RFD232Z	Bracket, Pause Prevention
M142	RFI35Z	Mat-A
M143	RFI41Z	Mat-B
M145 [1]	RFE102Z	Screw (Leaf Switch M'tg)
M147	RFE251Z	Screw (Pinch Roller, Erase Head Arm, Metal Guide M'tg)
M148 [2]	RFD254Z	Bracket, Tape Counter
M149 [2]	RFQ43Z	Pulley, Counter Intermediate
M150 [2]	RBC822Z	Button, Pause Ⓢ
M151 [2]	RBC823Z	Button, Stop/Eject Ⓢ
M152 [2]	RBC824Z	Button, Fast Forward Ⓢ
M153 [2]	RBC825Z	Button, Rewind Ⓢ
M154 [2]	RBC826Z	Button, Playback Ⓢ
M155 [2]	RBC827Z	Button, Record Ⓢ
M156 [1]	RBC828Z	Button, Playback Ⓢ
M157 [1]	RBC829Z	Button, Rewind Ⓢ
M158 [1]	RBC830Z	Button, Fast Forward Ⓢ
M159 [1]	RBC831Z	Button, Stop/Eject Ⓢ
M160 [1]	RBC832Z	Button, Pause Ⓢ
M163	XTN2+6B	Screw ⊕2×6 (Button M'tg)
M165	XWG2	Washer Ø2 (Button M'tg)
M167 [2]	RFB67Z	Belt, Tape Counter
M168 [2]	RFB68Z	Belt, Tape Counter Intermediate
M170	RFE297Z	Washer (Azimuth Adjustment)
※M171	RFE313Z	Terminal, Lug Ⓒ
※M171	RFE314Z	Terminal, Lug Ⓐ
※M171	RFE315Z	Terminal, Lug Ⓢ
M172	RFD269Z	Bracket, Detector
M173	RFE316Z	Screw (Detector Bracket)
M174	RFN170Z	Washer (Supply Reel Ass'y)
M175	RFE98Z	Screw (Sub Plate Ass'y)
M176	RFE312Z	Metal Guide
M177 [1]	RFN167Z	Washer (Push Button Actuator)
M178	RHR3070Z	Cover, Mechanism Button

GAD H.Y. Z E F G Printed in Japan Ⓕ D

ORDER NO. GAD8612230P2

Parts Change Notice

This is the Service Manual
for the following areas.
G ···For F.R. Germany.

Model No. RX-FW20L

(ORDER NO. GAD8606038C2)

Please revise the original parts list in the Service Manual to conform to the change(s) shown herein. If new part numbers are shown, be sure to use then ordering parts.

Reason for Change

*The circled item indicates the reason. If no marking, see the Notes in the bottom column.

① Improve performance	
2 Change of material or dimension	
3 To meet approved specification	
4 Standardization	
5 Addition	
6 Deletion	
7 Correction	
8 Other	

Interchangeability Code

**The circled item Indicates the interchangeability. If no marking, see the Notes in the bottom column.

	Parts		Set Production	
A	Original	⤫	Early	Original or new parts may be used in early or late production set.
	New		Late	Use original parts until exhausted, then stock new parts.
B	Original	→	Early	Original parts may be used in early production sets only. New parts may be used in early or late production sets. Use original parts where possible, then stock new parts.
	New	↗	Late	
©	Original	↗	Early	New parts only may be used in early or late production sets.
	New	→	Late	Stock new parts.
D	Original	→	Early	Original parts may be used in early production sets only. New parts may be used in late production sets only. Stock both original and new parts.
	New	→	Late	
E	Other			

Part Number

Model No.	Ref. No.	Original Part No.	New Part No.	Notes	Part Name & Description	Price
	IC1	RVITA7358P	AN7205	1-C	Integrated Circuits	

File this Parts Change Notice with your copy of the Service Manual.

Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Printed in Japan